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PART I.
ORIGINAL COMMUNICATIONS.

ART. XII.—*Lessons from Surgical Practice.* By B. WILLS RICHARDSON, F.R.C.S.I.; Examiner in the Royal College of Surgeons, and Surgeon to the Adelaide Hospital, Dublin.

- I. ILLUSTRATIONS OF THE STRUCTURE AND PATHOLOGY OF HEMATOID CANCER—EPITHELIAL ULCERS AND HORNY GROWTHS—EPITHELIAL CANCER OF TONGUE—CARIES, OSTEITIS AND NECROSIS OF BONE—AND HEMATOID CYSTS.
- II. ILLUSTRATIONS OF URINARY DISEASES—EXTRAVASATION OF URINE—DIAGNOSTIC VALUE OF BLADDER SYMPTOMS—OF CASTS IN NON-ALBUMINOUS URINE—CAUSE OF DEFORMITY OF OXALATE OF LIME DUMB-BELLS—600 HEMPSEED CALCULI.
- III. NEW HERNIA KNIFE AND A NEW PRESSE-ARTÈRE.
- IV. AMPUTATIONS—LUKE'S METHOD—LOUIS' MODE OF DEALING WITH PROMINENT BONES AFTER AMPUTATION.
- V. VALUE AND MODE OF USING ANTISEPTIC DRESSINGS.

If it were the custom of every surgeon to record successful cases only, young men on the eve of practice might be induced to consider the knife an infallible cure for surgical diseases and for accidents requiring operation. I have been always of opinion that

surgical reports, to be of any real advantage to the student, should contain the failures equally with the successes of surgical practice, or he will be likely to commit many errors of prognosis so damaging to professional reputation.

Holding these views I have invariably, as far as possible, in my reports of cases, described every vicissitude, whether favourable or unfavourable, which has occurred during their course, and, therefore, in the following records, nothing is withheld which would be likely to be useful in a didactic point of view.

Carbolic acid and its ally, creasote, were largely used as antiseptic ingredients in the dressing of several of the cases, which may render them of some interest to those who are undecided in their opinion as to the accuracy of Mr. Lister's views on the antiseptic value of carbolic acid in the practice of surgery. With the description of the last case will be found the formula of a carbolic acid cream, into the composition of which castor oil enters largely, itself an excellent dressing for wounds and foul surfaces.

The urinary cases are of much practical importance. One of them is an example of urinary infiltration under circumstances, but little noticed, even in works devoted specially to the surgery of the urinary organs. In two others, the microscopic appearances usually considered so presumptive of intractable renal disorganization, were due to a transient and remedial cause. While a fourth serves to illustrate how cautious we should be in arriving at the conclusion that symptoms of irritation of the urinary bladder are truly indicative of disease of that viscus.

The hernia knife and the tubular *presse-artère*, the construction of each of which is fully described, I am in hopes will meet with some favour, the first of these instruments being so well calculated to protect the bowel during herniotomy, and the second being a safe and efficacious means for the immediate compression of arteries.

Hematoid Cancer of the Tibia—Amputation of the Thigh by the Circular Method at the Junction of the Lower with the Middle Third—Recovery from the Amputation—Microscopic Characters of the Morbid Structure.

Joseph M., aged nine years, was admitted to the Adelaide Hospital, Peter-street, Dublin, on September the 19th, 1867.

The history of the case, elicited from the boy's mother, is as follows:—"That he fell upon and chafed the skin over the left

Fig. 1.



Fig. 3.

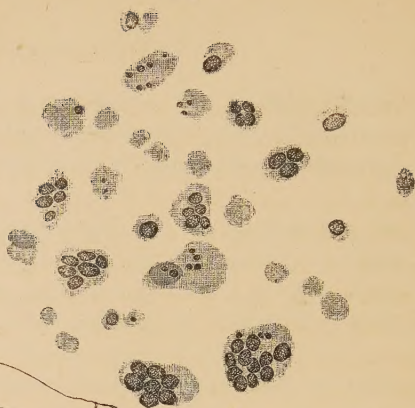


Fig. 2.

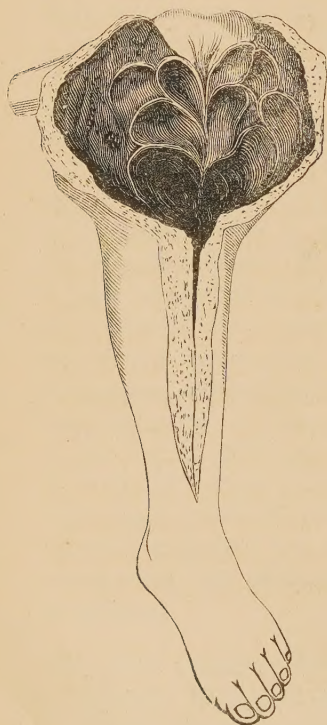


Fig. 4.

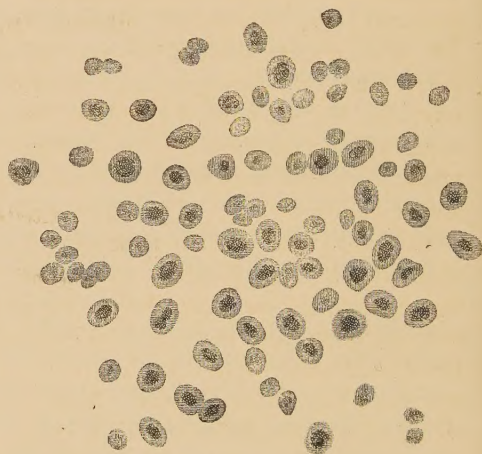


Fig. 1.—Outline drawing of hematoid cancer engaging left tibia.

Fig. 2.—Section of the cancer. The osseous wall of the tumour, rarefied into large cells, is well shown. From a coloured drawing by Mr. Samuel Knaggs, an indefatigable pupil of the hospital.

Fig. 3.—Cystoblasts and brood-cells found in one of the large bone cells. [Stained preparation.] Drawn with Nachet's camera. 230 diameters.

Fig. 4.—Cells from the enlarged gland: many of these are probably gland cells and lymph cells. [Stained preparation.] Drawn with Nachet's camera. 230 diameters.

The four figures refer to the case of Joseph M——, aged nine years.

knee-joint on the Tuesday following the Easter-day preceding his admission to hospital. The joint became painful three or four days after the accident, and just below the knee-cap a swelling was discovered which increased so rapidly in size that she was induced to consult a druggist, who advised her to rub the joint with a turpentine liniment, and to poultice it. A little while afterwards, the swelling was punctured and some blood escaped. That bleeding was stopped without difficulty by a lotion and the pressure of a bandage. The puncture healed in a few days. The swelling grew larger, chiefly in a downward direction, and was now and then exceedingly painful, just as if something were penetrating it. The knee at the same time became swollen. Dr. Russell, of Lurgan, saw the lad about the end of July, and punctured the tumour with an exploratory needle, which resulted in the diagnosis of the disease as soft cancer, and the recommendation of immediate amputation. The bleeding caused by the puncture was controlled likewise by a lotion and a bandage. Dr. Russell's excellent advice was not then followed. The tumour below the knee-cap continued to enlarge rapidly. It was seen next by Dr. Richard Tyrrell, of Banbridge, who also made an exploratory puncture into it. This was followed by bleeding, which, like that from the other punctures, was arrested by a lotion and a bandage. Dr. Tyrrell visited the patient again in three weeks, and made another puncture; but on that occasion the blood was spirted some distance. A styptic lotion and digital compression were found necessary for the suppression of the bleeding. The swelling increased more and more, and with such rapidity that Dr. Tyrrell directed the mother to bring the boy at once to Dublin, and place him under my care. Mrs. M. has fourteen other children, all of whom, she believes, are healthy. Neither the members of her own nor those of her husband's family were ever, to her knowledge, affected with cancer."

Symptoms on Admission.—Corresponding to the upper third of the left tibia there is a tolerably large tumour, having a somewhat uneven surface (Fig. 1).

The prominent elevations are exceedingly tense and elastic, the depressions between them being much more firm to the feel. Veins are seen ramifying over the swelling, and there is fluctuation in the corresponding knee-joint. In the part of the tumour thrown most forwards, there is a small opening through which blood would incessantly ooze, were it not prevented for a time from so

doing, by being plugged with lint saturated with a perchloride of iron solution, aided by the pressure of a pad and a bandage. The blood occasionally overcame the influence of the plug, pad, and roller, necessitating the re-adjustment of the apparatus. Pulsation is not appreciable in the tumour. The joint is semi-flexed, very painful, and the leg and foot are slightly œdematous. A flat, moderately hard, movable gland, about an inch and a-half in its long diameter, is situated a little below Poupart's ligament. There is no evidence of disease in either the chest or abdomen. The boy is very pale; his pulse ranges between 120 and 130; the tongue is clean and moist; the bowels are regular, and the urine is healthy. Full diet, with Liebig's essence of meat; blancmange; egg; wine, oz. 6. A pad saturated with solution of perchloride of iron was secured upon the tumour by a roller applied from the foot to above the knee.

On September 27th, the lad being further debilitated, seemingly from loss of blood, I considered immediate amputation necessary to save him from impending death by hemorrhage, and, having brought him fully under the influence of chloroform, I performed, with the assistance of my colleagues, the circular operation at the junction of the middle with the lower third of the thigh. The periosteum being more loosely attached to the femur than even is usual in children, there was some difficulty in preparing a place for the saw without detaching it to a greater extent than was necessary. For a reason I shall mention presently, more covering was spared for the bone than is requisite with fully grown adult limbs. The arteries were secured with silk ligatures, five vessels being tied. The wound having been closed, the edges of the skin were kept in apposition by means of two sutures and two strips of adhesive plaster. A roller was applied to within about an inch and a-half of the end of the stump, the line of incision being covered with styptic colloid. When the enlarged gland was dissected from the groin, the edges of the wound made for its removal were retained together by strips of soap plaster, and covered with styptic colloid. Beef-tea, with Liebig's essence of meat, jelly, and ice, were given to him in judicious quantity, and he had a full opiate.

Sept. 28th, 10 o'clock a.m.—Had a good night's rest; pulse 100; face flushed; skin hot; stomach irritable yesterday for three hours after the operation. The fluid nourishment, with the iced drinks and the opiate, were ordered to be continued. He was to have six

ounces of wine in the twenty-four hours. Styptic colloid painted over the face of the stump.

Sept. 29th.—Had but one opiate and slept the whole night; pulse 132; skin cooler. Takes his food with appetite. Bowels not moved since the operation. Stump looks healthy, and is free from smell. It was varnished with styptic colloid, over which water dressing was applied. The same diet and stimulants were continued, and he was ordered five grains of the compound rhubarb pill at night.

Sept. 30th.—A little thin pus coming from the stump. Tongue clean; bowels moved once. Stump dressed with creasote ointment. Same diet and stimulants, &c.

Oct. 1st.—Pulse 126. Scarcely any discharge from stump. Dressed with the same ointment, and the skin brought down and secured with a calico roller. Same diet, stimulants, &c.

Oct. 2nd.—Pulse ranges from 110 to 120. Discharge from stump trifling. It was dressed with an ointment composed of four drachms of creasote ointment, two drachms of carbolic acid, and two ounces of lard, care being taken to press some of this between the lips of the wound. Same diet, stimulants, &c.

Oct. 3rd.—Slept all night; pulse 108. Same management of stump, and same diet, stimulants, &c.

Oct. 4th.—Although he had a good night he is very irritable this morning. The appetite, notwithstanding, is excellent, and the countenance has improved. Pulse 100. But little discharge from stump, which was dressed in the same way. Wound in groin granulating, and dressed with ointment similar to that used with the stump. The diet and stimulants were continued.

Oct. 5th.—Pulse 112; tongue natural. A considerable portion of the stump is firmly consolidated, and scarcely any suppuration. Same management of stump. No change made in his diet, &c.

October 6th.—Pulse 108; Suppuration not perceptible.

October 8th.—Pulse has risen to 120, and he is very irritable. No evidence of renewed suppuration, and the greater part of stump is united. The sutures were removed, and he was prescribed half a grain of sulphate of quinine and half a grain of sulphate of iron thrice daily. Diet and stimulants as usual.

October 9th.—Pulse 108; slight diarrhea. A few drops of pus discharged from the track of the ligatures, one of which, being loose, was withdrawn. In consequence of the diarrhea, the dilute sulphuric acid of the quinine mixture was doubled in quantity.

October 10th.—Diarrhea has not recurred. Pulse 120. Left end of stump-wound discharging a little pus. Another ligature taken away. Groin nearly healed.

October 11th.—Pulse 116; about half a drachm of thick laudable pus discharged on pressing the inner end of wound.

October 12th.—Pulse 120; no pus discoverable.

October 13th.—Another ligature removed. A few drops of pus have again appeared at the external end of stump-wound. No change in diet, &c.

October 14th.—Pulse 100; suppuration from the outer end of stump-wound has ceased.

October 15th.—Pulse 100 to 120; a few drops of pus came from the track of the femoral artery ligature, which was removed to-day.

October 16th.—No suppuration. The creasote was omitted in the oxyde of zinc and carbolic acid ointment.

October 17th.—Pulse 100; diarrhea, with tormina; tongue slightly furred. The XX porter and quinine mixture were discontinued, and he was to have three minims of the solution of muriate of morphia thrice daily.

October 18th.—Vomited on seven or eight occasions since yesterday's report was written; diarrhea has ceased; tongue natural. To have instead of the morphia, citrate of quinine and iron, with infusion of calumba. Brandy and egg.

October 21st.—Pulse 100; no discharge from stump. Roller applied.

October 26th.—Wound in groin cicatrized.

It is unnecessary to give any further notes of the progress of the stump to complete consolidation, for it advanced most favourably, and we allowed him home on the 26th of the following month, to all appearance in good health and spirits. He improved so much after returning to the country that he attended school for some months. In the ensuing August, however, he commenced to cough, next to waste, and died in the following September.

Pathological characters of the Tumour and of the enlarged Gland.—A longitudinal section having been made through the anterior part of the tumour, it was found to be composed mostly of broken down debris, disintegrated blood clots, and a good deal of fluid blood. The posterior wall of the tumour, and its lower unenlarged tibial boundary excepted, there were no traces of osseous structure discoverable in connexion with it. The other portions of the wall

of the tumour were formed of fibrous tissue and of thin skin. The posterior wall was skin and bone, the latter being rarefied into tolerably large cells, between a few of which the separating osseous laminae were imperfect. Some of the cells having been divided when making the section, the appearance of deep depressions was thereby produced. (Fig. 2.) They were occupied by disintegrated blood clots and debris.

If, as I have mentioned, the rarefied posterior wall of the tumour is excepted, about one-third of the tibia appears to have been destroyed by the malignant action, unless we are to suppose that the rarefied wall formed originally the whole upper third of the tibia, and that the hematoid disease was developed in front of it, and communicated ultimately with the rarefied cells.

Under the microscope some of the broken down substance taken from one of the opened bone cells was found to be made up of cytoblasts, brood cells (Fig. 3), and blood, the two former in small quantity only.

The diseased gland removed from the groin contained numbers of nucleated cells (Fig. 4), the nuclei in some of which are large in proportion to the size of the cells. Many of these bodies are possibly cytoblasts with nucleoli, and others, unaltered gland cells.

The amputation of the thigh of Joseph M. was, in our opinion, a proceeding of necessity, death from hemorrhage being imminent at the time we resolved upon its performance. Indeed, it may be safely asserted that his life was prolonged for several months by the operation.

In cases of amputation through any of the long bones, it has been observed that the stump is more liable to assume a conical form in young persons than in the adult, a peculiarity which may be explained by the provisions made for the natural elongation of these bones during the progress of growth. For as one of the epiphyses, which enables the bone to increase in length, remains still attached to the stump bone (or to each stump bone should there be two) in case of amputation through its continuity, the residual portion of shaft bone is, as it were, gradually pushed downward by the progress of ossification at its junction with the epiphysis. But while this osseous development is in progress, it is accompanied by a sub-cutaneous wasting of the soft parts which compose the end of the stump, and hence the greater liability to the formation of a sugar-loaf stump in persons whose ossification is not

completed. The more scanty, therefore, the covering of soft parts which the surgeon leaves for the bone, the greater will be the tendency to ultimate concity of stump.

Osteitis and Necrosis of the Femur—The Femoral and Popliteal Vessels in danger of Perforation by the Sequestrum—Amputation by Luke's Method—Severe Symptoms of Blood-Poisoning—Recovery.

Robert S., aged thirty-six years, a cooper by occupation, was admitted under my care to the Adelaide Hospital, Peter-street, Dublin.

Two years before entering hospital, when in the act of moving some boxes, each of which weighed about five hundred pounds, the lower part of his left thigh got jammed between a couple of them.

The intense pain caused by that squeeze induced faintness and loss of power. These effects, however, were but temporary, and in the evening he walked home. The pain did not subside, and during the night prevented sleep.

The next day he went by rail to Kingstown on business, and walked a good deal. This so aggravated the pain in the limb, that on returning home he had to go to bed, and was confined for four weeks under surgical treatment.

The limb swelled, and the third week after the injury an opening formed on the inside of the thigh, a few inches above the condyle. He eventually resumed work, and laboured for six months, yellow matter having been discharged continually by the opening. Towards the end of the sixth month a small piece of bone came through it.

Persistent pain, which was occasionally excessive, forced him at length to apply for hospital relief. Having succeeded in gaining admission to one of our charitable institutions, he remained there for about a fortnight, and left of his own accord. He next sought admission to the Adelaide Hospital, where he had the advantage of most judicious management by my then colleague Dr. Macalister, and was so relieved that he left hospital at the expiration of a couple of months.

When he was under Dr. Macalister's observation the lower two-thirds of the femur were apparently diseased, this portion of the thigh being enlarged. Immediately above the condyles it doubled in width the corresponding part of the opposite limb. There were several depressed, but non-adherent, cicatrices in the lower third

of the thigh; and there was an opening encircled by fungous granulations just below the plane of the femoral artery where it enters Hunter's canal, the vessel manifestly forming the upper and the internal boundary of a cloaca. A second opening was situated two inches above the external condyle, and was free from elevated granulations. Through these cloacæ the bone was explored on various occasions, and denuded osseous tissue felt. A sequestrum was discovered at the bottom of the upper canal. It yielded a clear ringing sound when struck briskly with a large bulbed probe, and was immovable. Those examinations caused much pain, which was most severe when any part of the lower fourth of the bone was touched with the instrument. The knee-joint was immovable.

At that period Robert S. experienced but little constitutional disturbance. Rest, diet, and the medicinal treatment to which he was submitted by Dr. Macalister enabled him to leave the hospital, as I have already mentioned, and to work again at coopering. He laboured actively, but was compelled by the helplessness produced by renewed pain and suffering, to seek admission a second time, and came under my care on the 29th September, 1868. On that occasion the whole of the affected part of the femur was exquisitely tender, and much more enlarged in the middle third than when he was last in hospital. The bone was abnormally curved, presenting a convexity forwards. The soft parts in the neighbourhood of the upper and internal fistulous orifice were much thickened, while a profuse fetid discharge flowed through that opening. Very little pus escaped from the inferior and external orifice. Pulse 120, weak; countenance anxious and unhealthy-looking.

Under the influence of the horizontal position, good diet, the use of iodides of potassium and iron, with cod liver oil, the pulse fell to 80, and his sufferings were much lessened. Taking advantage of this truce we were enabled to examine the bone more satisfactorily. The sequestrum was easily reached through the upper opening. Bared bone could be likewise felt at the bottom of the lower cloaca, but did not, from its roughness, seem to form part of the sequestrum. The latter continued immovable. Pressure on the middle of the thigh caused pus to issue in quantity from the upper orifice.

That and all subsequent examinations were exceedingly painful; and the tenderness of the outer and lower part of the femur was almost unendurable. He would not submit to chloroform anesthesia. During the month of October there was freedom from pain and from

constitutional disturbance. In November he was not so well, and the pulse became again rapid. The sequestrum continued immovable.

Perspiration with hot skin occurred in December, and the countenance became more anxious, the femur more curved, and the sequestrum remained as fixed as usual. It now appeared to me that the time had arrived for more active surgical interference. A consultation was accordingly held with my colleagues, and we agreed that as, in addition to the presence of a sequestrum—probably a large one—there was very decided evidence of active inflammation in the lower third of the femur, amputation would most likely be the proper resource. Being reluctant to sacrifice the limb, we agreed also that the upper cloaca ought to be first enlarged to ascertain the exact condition of the sequestrum. And should it appear likely that the operation for its removal would be tedious and accompanied by much bleeding, I was to amputate forthwith. Accordingly, on the 16th December, 1868, I laid open the upper cloaca, the patient being under the anesthetic influence of chloroform. Notwithstanding that the abdominal aorta was more or less compressed by one assistant, and the femoral artery accurately and firmly controlled by Dr. Barton, the hemorrhage from vessels not under command, was so considerable, I determined to amputate at once just below the lesser trochanter, and in doing so adopted the method recommended by Mr. Luke. The arteries requiring it were ligatured; several retracted and were not tied. Before the large flaps were secured in apposition they were bathed with a mixture of carbolic acid glycerine and water (3ii. to 3x.) Three long needles with the twisted suture, and three straps of brown soap plaster sufficed to maintain the flaps in accurate contact when assisted by an underlying padded splint. He was given a full opiate after the operation, and ordered a morphia mixture to induce sleep at night should it be necessary. When he was settled in bed, a flannel roller was stretched across it and over the stump, to restrain the latter from starting, and he was to have six ounces of wine with plenty of nourishment in the twenty-four hours.

December 17th, 11 o'clock a.m.—He had some refreshing sleep after taking several doses of the morphia mixture; pulse 136 to 140; spasms of stump frequent; stump syringed with the carbolic acid, glycerine and water, a few drops of creasote being added. He was prescribed a cinchona bark mixture with aromatic spirit of ammonia.

December 18th.—Stump syringed repeatedly with the carbolic

acid lotion since the 17th; rested well; tongue natural; pulse 106 to 108; skin hot; profuse perspiration occasionally. After the last syringing of the stump it was covered with an ointment composed of carbolic acid, creasote and lard. His diet was increased by the addition of extract of meat, and chicken, but he had the same allowance of wine. The aromatic spirit of ammonia was changed for full doses of dilute sulphuric acid.

December 19th.—Had to be given an anodyne to procure sleep. Pulse 118 to 125 dicrotous, and sometimes very irregular. Profuse perspiration; tongue natural; a few inches of the edges of the flaps united, but some grumous-looking fluid oozed from the outer end of the wound. The nozzle of a moderate-sized brass syringe having been inserted at this part, the flap cavity was washed with the lotion. Some gallic acid glycerine was added to the bark and dilute sulphuric acid mixture, and his wine was increased to 12 oz. in the twenty-four hours.

December 20th.—Required an anodyne last night. Pulse 96 to 120; startings of stump troublesome. Flap space syringed with the lotion, and dressed with a thick layer of the carbolic acid ointment. Same diet, &c.

December 21st.—Pulse 96 to 110, not so dicrotous; profuse perspiration at intervals; tongue natural; tendency to diarrhea; laudable pus flowing in moderate quantity from the track of the ligature. Ate a chop and half a chicken. Flap space syringed with the same lotion, and wound dressed with the ointment. To have a chalk, catechu, and laudanum mixture, instead of the bark mixture. His diet and stimulants were not altered.

December 22nd.—Required the morphia mixture last night; profuse perspiration; bowels quiet; pus flowed from outer end of stump wound; more of its edges firmly united. Flap space and surface of stump managed as it has hitherto been. Two ounces of whiskey in gruel, in addition to his allowance of wine.

December 23rd.—After four doses of the morphia mixture he had a good deal of sleep; countenance much improved; pulse 96 to 120; appetite good; tongue natural; discharge from stump improved in character; stump managed in same way. To have a mixture of sulphate of quinine and dilute sulphuric acid. Usual diet and stimulants.

December 24th.—Had a good night, but required the morphia mixture; stump startings much less frequent; pulse 96; nocturnal perspiration; appetite good; tongue natural; discharge from stump

healthy; the edges of the flaps more united. Flap treated as usual. Same diet and stimulants.

December 25th.—Stump startings so painful in the night that he had to be given several doses of morphia mixture; pulse 90; profuse perspiration; tongue natural; the only remaining twisted suture-needle removed. It was left in the flaps thus long in consequence of their having a tendency to separate from each other where it was placed. Stump managed in same way. Same diet, stimulants, &c.

December 26th.—Had morphia mixture last night, and slept well; discharge trifling; a small slough of areolar tissue ejected from between the outer half of the flaps; occasional perspiration. Stump treated as hitherto. Same diet, &c.

December 27th to 29th.—Some sulphate of iron was added to the quinine mixture.

December 30th.—On the completion of the dressing of the stump this morning he was seized with a severe rigor, which lasted for a quarter of an hour; the pulse before its access beat at 98. As the day wore on it rose to 130; the skin became warm, and covered with a copious perspiration; tongue clean and somewhat dry. No alteration in diet, &c.

December 31st.—Some sleep; pulse 108 to 120; bathed in perspiration; appetite good; tongue natural; discharge laudable; no alteration in the management.

January 1st, 1869.—Pulse 98 to 100; perspiration profuse; countenance improved; tongue natural; suppuration in small amount; union proceeding favourably; femoral artery ligature removed. To have one pint of XX porter in addition to his other stimulants; same medicine.

January 2nd.—Pulse 112 to 130; perspiration diminished; skin icterine; suppuration about the same in amount; flap space lessened. It was syringed, and the stump dressed as usual. No change made in diet, stimulants, or medicine.

January 3rd.—Pulse 108 to 120; another severe rigor, and of ten minutes' duration; appetite unimpaired; tongue natural; skin not so icterine; slight cough; suppuration not diminished. Stump dressed as usual, and he was to have a quinine mixture, with tincture of aconite. Same diet and stimulants.

January 4th.—Pulse 114 to 120; nocturnal perspirations lessened in frequency; suppuration in small quantity and of good colour; wine reduced from twelve to nine ounces in the day.

January 5th.—Pulse 84 to 108; nocturnal perspirations persist;

suppuration in small quantity from the inner part of stump, apparently caused by the presence of a ligature still tightly held. This part, as well as a small space between the flaps at the centre of the stump, were syringed with the carbolic acid lotion. Same dressing, diet, &c.

January 6th to 10th.—Pulse 90 to 102; nocturnal perspirations persist. To have at night a mixture of gallic acid glycerine, dilute sulphuric acid and water. Same diet and stimulants. Quinine mixture during the day.

January 11th.—Pulse 96 to 98. A short time subsequent to the dressing of the stump he was seized with a severe rigor, which continued for several minutes. About a drachm of pus from the track of the ligature, which remains immovable. Diet, stimulants, and medicine, as usual.

January 12th to 16th.—Pulse 96 to 104.

January 17th.—Pulse 96; perspirations lessened in quantity and frequency; a phlegmonoid abscess in the track of the ligature, which is still in position; abscess emptied by pressure, and its cavity syringed with the carbolic acid lotion. Same diet and stimulants. To have a mixture composed of sulphate of quinine, dilute sulphuric acid, sulphate of iron, tincture of veratrum viride and water.

January 18th to 20th.—Pulse 96 to 100; the ligature—the probable cause of the persistence of the suppuration—having loosened on the 20th, was removed. No change in treatment.

January 21st to 23rd.—Pulse 80 to 108; suppuration almost imperceptible; stump managed in the same way; wine reduced to eight ounces in the day; the whiskey, XX porter, and diet as usual.

January 24th to 30th.—Pulse 90; was allowed to sit at the fire on the 25th, and since then has been up daily.

A very short sinus in the track of the last ligature; it was syringed with the lotion. Wine reduced to seven ounces in the day. Same diet, whiskey, XX porter, medicine. January 31st to February 3rd, pulse 90; wine reduced to six ounces in the day, and the whiskey to one and a-half ounces; XX porter and same medicine.

February 4th.—Tenesmus with mucous and bloody stools, which, having been attributed to the veratrum, it was discontinued. To have a rhubarb draught with laudanum, and an opium enema; XX porter omitted. Wine, whiskey, and diet as usual.

February 5th.—Stools much less frequent; tenesmus relieved. Opium enema repeated.

February 6th.—Dysenteric diarrhea having ceased he was given a sulphate of quinine, and dilute sulphuric acid mixture.

February 7th to 20th.—Convalescent, and sent on the latter day to the Convalescent Home, near Stillorgan, where he remained for some weeks.

Upon his return to the hospital I had a drawing of him made (Fig. 5), by which it will be seen how excellent a stump can be

Fig. 5.



Robert S —, after amputation of the thigh, according to Mr. Luke's method.

formed by Luke's operation. The case, moreover, is of much practical interest, the femoral and popliteal vessels having been for so many months in imminent danger of perforation by the sequestrum (Fig. 6.) Again, the important practical question as regards operative interference—the completion of sequestration—is eluci-

Fig. 6.



Fig. 8.

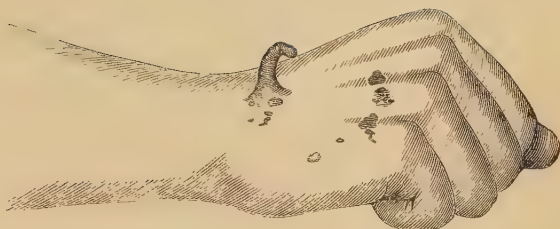


Fig. 9.

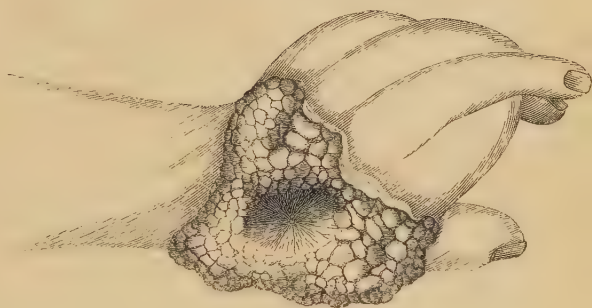
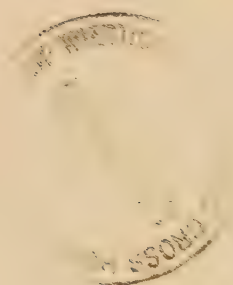


Fig. 6.—Femur of Robert S—, showing the sequestrum *in situ* and the portion of the femoral artery which ran near to the upper cloaca.

Fig. 8.—Epithelial cancer horn, and blackish horny scales on back of right hand.

Fig. 9.—Ulcerated epithelial cancer on left hand and forearm.

Figs. 8 and 9 refer to the case of James B—, aged eighty-one years.



dated by it. For, when a long bone having an invaginated sequestrum, becomes abnormally bent, it is probable the sequestrum has been thrown off by the living bone, although it may be immovable owing to the curving of the new shell causing its impaction with the former. In Robert R. sequestration was completed, but the sequestrum being impacted with the old bone above, and supported below by a buttress projecting from the new case (Fig. 6), while at the same time its lower part was pressed forward by consolidated tissues, it could not be moved before operation. Finally, evidence of the existence of protracted osteitis engaging the lower third of the femur (Fig. 7) being so strong, I almost hesitated to try any tentative procedure on the day of the amputation.

If the occurrence of rigors, with profuse cutaneous and intestinal fluxes, be accepted as evidence that the condition called pyemia has arisen, as was recently done in the Paris discussion on traumatic fever, this case tends very much to prove that careful attention to the details of constitutional and local treatment may rescue a patient even from so alarming a complication.

Epithelioma of Left Hand and Wrist—Epithelial Horn on Right Hand—Coincidence of Diseases. The principle of Luke's Thigh Amputation applied to the Forearm—Recovery from the Amputation.

I amputated the forearm with reluctance in this case, and complied only under protest, after reiterated requests of the man to have the operation performed.

The case, however, is of pathological interest, as it illustrates to some extent the history of epithelial cancer, there having been upon one hand blackish horny scales, and a brown-black prominent horn (Fig. 8.) While on the other, as well as on the back of part of the corresponding forearm, there was a very characteristic ulcerating epithelial cancer (Fig. 9), which had been preceded by the formation of a horn and of scales like those on the right hand.

James B., aged eighty-one years, was admitted to the Adelaide Hospital, Dublin, on the 8th March, 1869, having been recommended to me by Dr. Clendinnen, of Clonmore, Hacketstown.

The patient stated that about eight years previously, a wart formed on the back of the left hand, which, from his description, was situated over either the fourth or fifth metacarpal bone.

According as it grew prominent he lowered it with a knife, and it eventually disappeared.

Towards the end of the year 1866, the same hand got jammed between the prongs of a fork, whereby the skin of the dorsum was chafed. The injured skin scabbed, but did not heal, and was at times so itchy that he could not resist scratching it and tearing off the scab. After reiterated scabbing the part became so tender he ceased to rub it. A horn commenced next to form, which he lowered frequently with a knife. However, instead of growing again after the last cutting, it was replaced by an ulcer which extended gradually until it attained the large size it presented when he was admitted to hospital (Fig. 9).

At that period it occupied nearly the dorsum of the hand, the greater part of the thumb, a portion of the forefinger, back of wrist, and the back, the front and outer part of the lower fourth of the radial side of the forearm. It was warty circumferentially, the papillæ being very large and prominent. The margin was raised, uneven, and indurated; the centre was excavated, and corresponded to the three outer metacarpal bones, which were involved in the destructive process, yielding to the slightest pressure of the probe. It gave off a most sickening fetor. The palm of the hand and the fingers were œdematous (Fig. 9). In the axilla of the same side two small indurated glands could be felt. Nearly over the centre of the carpus of the right hand there grew a horn (Fig. 8), which resembled the horny projections, most frequently seen, according to my observation, on the scrotum of the chimney sweep. It was brownish-black in colour, about three-quarters of an inch in length, slightly curved inwards, and fixed pretty firmly by its base to the underlying structures.

The man told us that the horn by which the ulcer of the left hand was preceded, had nearly similar characters. He never used soot in farming, but his hands were often much scratched by furze thorns. He believed that his father had cancer of the lip, and that it had been cured by means of the local applications of an old woman! He lived, however, for several years afterwards!

The pulse beat at 80, and his appetite was good. The fetor given off by the ulcer was subdued by creasote ointment better than by other local applications.

He was prescribed a mixture of infusion of quassia and sulphate of iron. Full diet, with egg, and eight ounces of wine.

March 24th.—Yielding to his pressing requests to “cut off”

the arm and relieve him, even for a short time, of the pain and weight of the hand, I amputated, while he was fully under the influence of chloroform, the forearm a little below the elbow-joint, according to the principle of Luke's amputation of the thigh, a method recommended for the removal of the forearm by Mr. Lane in the last, but uncompleted, edition of "Cooper's Surgical Dictionary." Thus, the anterior flap was formed by transfixion, and the posterior dissected from the skin to the bones. The arm was supinated during the cutting of the first flap, and pronated to allow of the formation of the second. I used on that occasion my tubular *presse-artère*, described further on, and to which I also drew the attention of the profession in the *Medical Times and Gazette* for the 24th of April, 1869.

One *presse-artère* was applied to the radial, and a second to the anterior inter-osseal arteries, being the only vessels that required immediate compression. The flaps were secured in apposition by a couple of long needles and the twisted suture. When removed to bed he was given a full opiate, and ordered to have whiskey gruel and twelve ounces of wine in the twenty-four hours.

March 25th.—Bronchorrhea and troublesome cough, yet he sleeps well, and eats with appetite, and enjoys his stimulants. To have a mixture composed of infusion of senega, dilute nitro-hydrochloric acid and tincture of hyosciamus. The surface of the stump was syringed with a carbolic acid glycerine and creasote lotion of the same proportions as were used with the stump of Robert S. It was then covered with an oxide of zinc, creasote, and carbolic acid ointment. His diet and stimulants were not altered.

March 26th.—I removed the *presse-artères* at noon, without the occurrence of bleeding. The stump was syringed and dressed with the lotion and ointment. No change was made in his diet, &c.

March 27th.—A little suppuration from the stump. It was syringed and dressed in the same way. He was prescribed a cinchona bark mixture with dilute nitro-hydrochloric acid, and the polygala mixture was discontinued. No change made in either his diet or stimulants.

March 29th to 31st.—Stump healing rapidly under the same management.

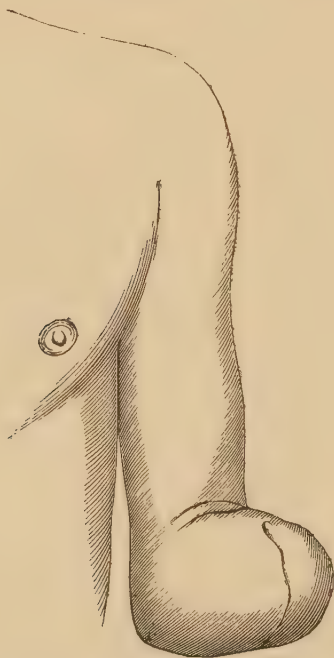
April 1st.—The needles which maintained the flaps in apposition were removed. No suppuration. With the exception of the application of a roller no other change was made in the mode of treating the stump, and he had the same diet and stimulants.

April 2nd to 16th.—The stump was managed in the same manner. A little pus came from it occasionally, but not more than a drachm on any day. It ceased to do so on the seventeenth, when the stump was cicatrized, no variation having been made in the treatment.

The sharp north-easterly wind being, unfortunately for him, then prevalent, the bronchitis became aggravated; rapid effusion took place into the tubes, and he died on the 19th of April.

A cast of the stump was taken by the resident pupil, Mr. Samuel Knaggs, and is represented on a reduced scale in Fig. 10. Need

Fig. 10.



Stump after amputation of the forearm, according to the principle of Mr. Luke's thigh amputation.

Case of James B—, aged eighty-one years.

I remind the reader that the stump being so recent when the mould of it was taken, it was larger than it would have been had he lived sufficiently long to allow it to waste. The drawing is true to nature, and not a fancy diagram, like so many representations of stumps published at the present day.

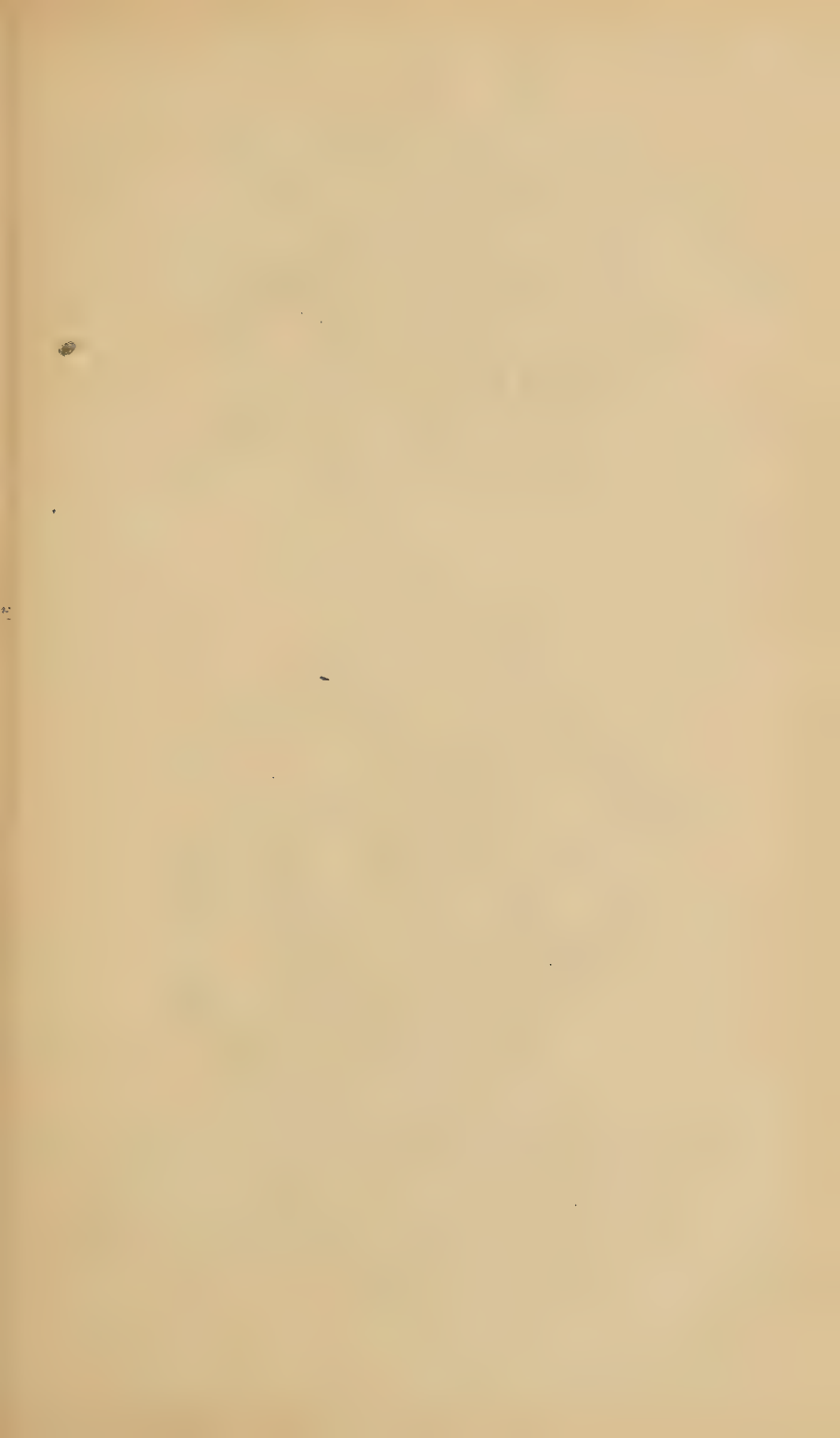


Fig. 11.

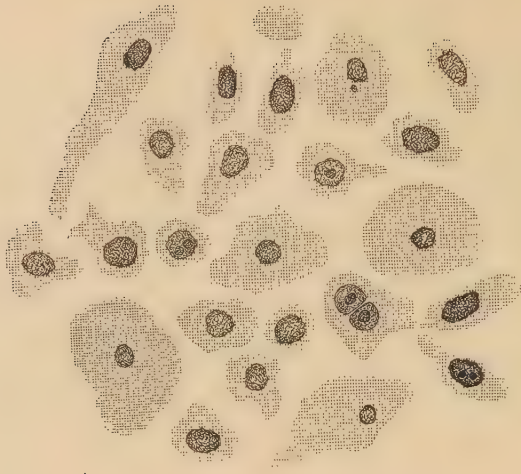


Fig. 12.

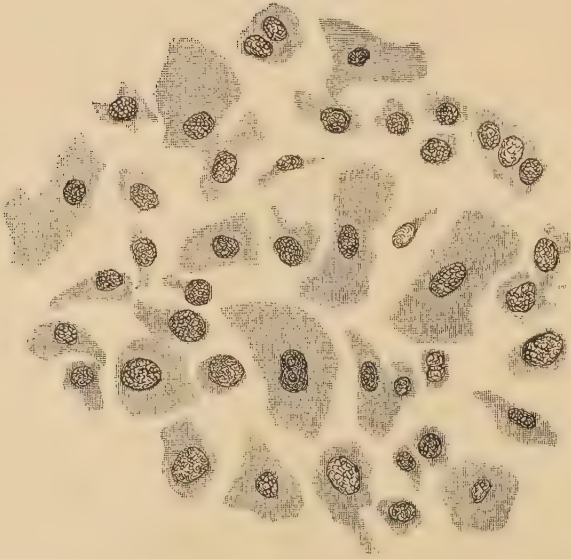


Fig. 11.—Cells similar to the cells seen in epithelial cancer. From the ulcer of the hand. [Stained preparation.] Drawn with Nachet's camera. 230 diameters.

Case of James B——, aged eighty-one years.

Fig. 12.—Cells from epithelial ulcer of the tongue, similar to the cells seen in epithelial cancer. A few of the cells resemble the cells of scirrhous cancer. [Stained preparation.] Drawn with Nachet's camera. 230 diameters.

Case of J. W——, aged fifty-eight years.

Pathological Examination of the Horn, the Ulcer, and of the Bones.—After the removal of the hand I submitted several pieces of the ulcer to a microscopic examination, and found them composed chiefly of yellow elastic fibres, and of cells that resembled the cells seen in epithelial cancer. Many of the cells were fantastically shaped, and the majority had large nuclei (Fig. 11).

Some epithelial globes were imbedded in the sections and rolled out of their nests after a few touches with the needles.

I have introduced (Fig. 12), for comparison with Fig 11, an illustration of cells from a specimen of cancer of the tongue I removed by operation in 1867, and of which I published the account in the *Medical Press and Circular* for the 15th of May of that year. In it there were mixed with the epithelial cells, some cells which resembled the cells found in scirrhus cancer, and which induced me to think that it was a case possibly of mixed cancer. The epithelial structures, however, predominated in the diseased part.

The subject of the operation is represented in Fig. 13, with the

Fig. 13.



Mixed cancer (?).

J. W —, aged fifty-eight years. Ligatures *in situ* on the tongue.

ligatures *in situ*, the "ligature" being the procedure adopted. The man having survived the operation for several months after his case appeared in the *Medical Press and Circular*, its ultimate history could not then be recorded, and appears now for the first time. Signs of recurrence of the disease became evident about four months subsequent to the ligaturing of the tongue, and he lived for eight months more, being twelve months from the date of the operation to that of his death.

Radio-carpal Articulation.—The synovial membrane was injected in one situation, and the articulating end of the radius was softened.

Carpus.—Scaphoid, semilunar, trapezium, trapezoid, os magnum and os unciforme were softened, the semilunar and os unciforme being least altered.

Metacarpus.—First, second, third, and fourth bones very much diseased, the carpal ends of the first three having almost disappeared, the remainder being softened and infiltrated with epithelial cells (Fig. 14), similar likewise to cells seen in epithelial cancer.

The phalanges corresponding to the diseased bones were very vascular.

The Horn from Right Hand —The prominent horn (Fig. 8) when removed from the hand was found to be of suitable consistence for slicing in the section cutting instrument. Accordingly it was placed in the tube and some very thin transverse sections taken from it. A piece of one of these is represented in Fig. 15. It seems to be formed of cut papillæ.

There are few members of the profession who, I am sure, have not observed in either hospital or private practice those remarkable coincidences of disease or of accident that could not possibly have had any connexion with each other. A coincidence of the kind was, I fear, exemplified in C. D., a man passed middle age, that presented himself at the hospital a few days after the death of James B. There were on his left hand several blackish horny scales (Fig. 16), similar in appearance to the scales seen on the hand of James B.; and on the right hand there was an elevated ulcer (Fig. 17) surrounded by reddened skin. The ulcer had a finely-papillous surface. A dark horny scale was situated between the helix and antihelix of one ear, and, curious enough, a similar kind of scale formed on the corresponding part of one of the ears of James B.

I have lost sight of C. D., and am therefore unable to give any further particulars of his case, but from its resemblance in so

Fig. 14.

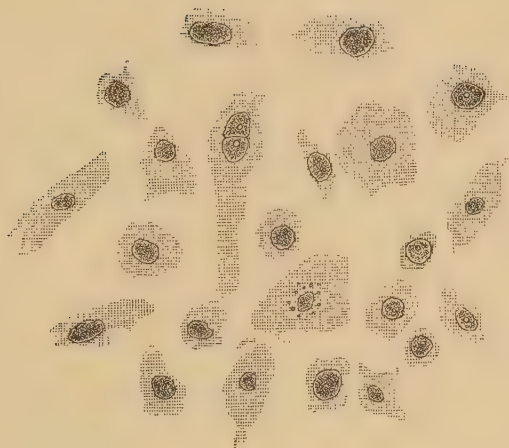


Fig. 15.

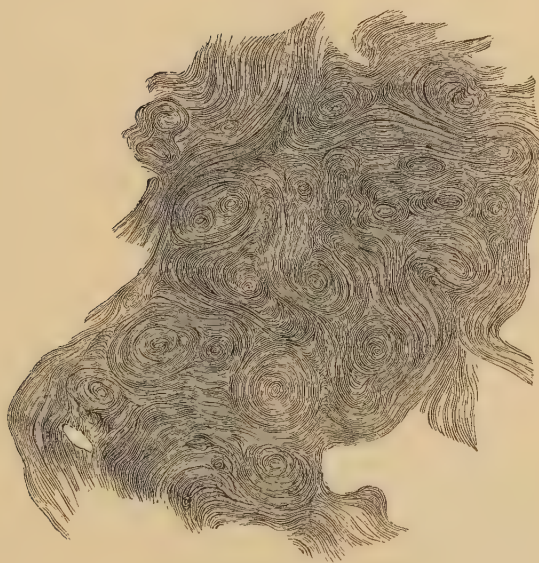


Fig. 14.—Cells similar to cells seen in epithelial cancer. From the metacarpal bones of left hand. [Stained preparation.] Drawn with Nachet's camera. 230 diameters.

Fig. 15.—Transverse section of the horn from right hand. It seems to be formed of cut papillæ held together by fibrous tissue. [Stained preparation.] Drawn with Nachet's camera. 18 diameters.

These figures refer to the case of James B—, aged eighty-one years.

Fig. 16.



Fig. 17.



Fig. 20.

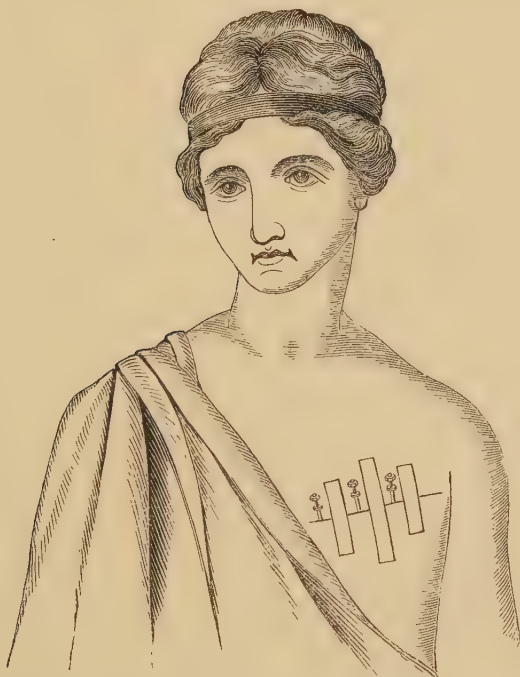


Fig. 16—Left hand of C. D——, showing horny scales.

Fig. 17.—Papillous ulcer on the dorsum of the right hand of C. D——.

Fig. 20.—The writer's tubular *Presse-artères* projecting from the wound made for extirpation of the breast.

many respects to the disease of James B., I apprehend that it will run an unfavourable course. I should mention that I destroyed the surface of the ulcer with *potassa c. calce*.

September 21st.—I met this man by accident in the street. The sore left by the *potassa c. calce* has cicatrized, with the exception of a small portion where a warty growth has made its appearance. It is surrounded by an indurated and tender cicatricial structure. He has a pale and haggard look, and seemed very desponding on account of the presence of the wart.

The Tubular Presse-artère—Caries of Os Calcis and Under Half of Astragalus—Bony Anchylosis of the Ankle-joint—Commencing caries of the Tibia immediately above the latter—Syme's Amputation at the Ankle—Recovery from the Amputation—Threatened re-appearance of Disease in the Tibia.

Miss C. R., aged twenty years, suffered when a young girl from disease of the left ankle-joint, which terminated in complete anchylosis of the bones forming that articulation. With the exception of the stiffness caused by the anchylosis, she experienced no other inconvenience until the beginning of February, 1868, when she sprained the left foot while making a jump. Before the effects of the sprain had subsided she walked a good deal. This was followed by suppurative inflammation, and an abscess formed which opened spontaneously below the external malleolus. The gentleman who attended her enlarged the opening. It remained patent, and other openings formed afterwards at each side of the heel.

When first seen by me (5th December, 1868), the left ankle-joint was immovable, the integumental and other coverings of the malleoli, astragalus, and os calcis being thickened, the skin having a livid red colour. Three openings existed on the outside, and two on the inside of the heel. They communicated together by means of sinuses. A probe could be passed across the heel between the os calcis and astragalus, and when some water was injected at one of the openings it escaped through the others. The upper portion of calcis and lower part of astragalus were denuded and softened. A depressed cicatrix existed in front of the anchylosed joint.

Her general health improved temporarily under the influence of alteratives, but the local disease did not progress favourably. The sinuses were syringed with carbolic acid glycerine and water. Iodine, Nélaton's favourite application for caries, was given a long

trial, but neither it nor any of the other applications we used, availed in checking the disease. The system beginning to afford evidence of sympathy with the diseased bones, amputation was advised, and she consented.

I determined to make in the first instance the incisions necessary for Syme's amputation at the ankle, and to complete whatever operation the condition of the ankle-joint showed to be most suitable. The patient having been placed under the influence of chloroform and the incisions made, the heel flap being dissected off the calcis, I found, as we anticipated, that the articulating ends of the tibia and the fibula were firmly united by bone with the astragalus. I then resolved to remove the foot with the diseased portion only of the astragalus; but on examination of the tibia just above the anchylosis it was found to be softened to a *very limited* extent internally. Syme's amputation was therefore completed by sawing the bone, and an attempt was made to leave the softened part in the lower section. However, when the bones were sawn, a *very small* portion of the spared tibia, which corresponded to the removed diseased spot, seemed redder, and felt a little softer than it should be. Fearing lest the limb might be shortened too much by slicing the bones with the saw, I gouged off the red and softened part.

One of my tubular *presse-artères* was placed upon the anterior tibial, and another upon a leash of branches in the heel flap, these being the only vessels that required immediate compression. The soft parts were secured together with long needles and twisted suture. To have a full opiate, full diet, and six ounces of wine in the twenty-four hours.

April 16th and 17th.—Progressed favourably, but being hysterical, she was ordered an infusion of cinchona bark with tincture of valerian. The *presse-artère* was taken off the vessels of the heel flap at six o'clock on the evening of the 17th, having been applied for about thirty hours.

April 18th.—I removed the *presse-artère* from the anterior tibial artery. A little bleeding followed, and stopped spontaneously. As a precaution against recurrence of bleeding I placed an acupressure needle under the vessel. I will not weary the reader with any further daily reports of the case, for matters proceeded favourably as regards freedom from suppuration; but cicatrization was delayed by the exfoliation of a very small piece of bone.

Pathological examination of the Foot.—The head and lower half of astragalus, with the greater portion of os calcis, had undergone

such destructive carious softening, that a considerable portion of them had disappeared. There were no traces of the articulation they at one time formed. The navicular and cuboid bones were redder than natural and softened. The cut section of the tibia anteriorly and internally was likewise abnormally vascular and softened. The tibia with the malleoli were firmly ankylosed to the remains of the astragalus.

The occurrence of a little bleeding after the removal of the *presse-artère* from the anterior tibial artery should not, in fairness, be used as an argument against the instrument, for there is every probability that if it had been left upon that vessel a few hours longer, bleeding would not have happened.

The stump was syringed daily with the carbolic acid, glycerine lotion, and dressed with the carbolic acid, creasote and zinc ointment previously mentioned.

Caries of the Tibia, Fibula, Cuboid, and of the Fourth and Fifth Metatarsal Bones—Amputation of the Leg by the Circular Method. Sloughing of the Stump Skin—Carbolic Acid Treatment—Recovery from the Amputation—Louis' Method of Dealing with the Bone when it threatens to cause Conicity of Stump.

In this case the antiseptic treatment of the stump was carried out according to the method I usually follow, and although but one vessel required tying, some sloughing of the skin cylinder took place. A tubular *presse-artère* would have been applied to the vessel only that both my instruments were undergoing some alterations.

Letitia M., aged fifty-four years, was admitted to the Adelaide Hospital, Dublin, under my care.

For several years she suffered from disease of the lower part of the right fibula, which was generally very painful, and for which she underwent two operations previous to coming into our hospital. Each of those operations had been succeeded by recurrence of the disease. She took a good deal of medicine internally, but it likewise had no influence in arresting the morbid process. Weary of her ailment she sought admission to the Adelaide Hospital.

The right foot, ankle, and lower third of the leg were swollen; the covering of the outer part of the foot, lower third of the fibula, and of the adjoining part of the tibia being of a livid colour and much thickened. There were three fistulous openings in the skin over the diseased fibula, one being in the centre of a cicatrix the result of a prior operation. The openings communicated with

softened bone, and gave exit to matter having a very sickening smell. As far as we could ascertain the disease engaged the lower third of the fibula and neighbouring part of the tibia.

Having failed in making any curative impression upon the diseased bones either by constitutional remedies or local applications, I made up my mind to excise the carious part of the fibula; but, should the state of the other bones be such that permanent relief would not be likely to follow its resection, then to amputate the leg.

The operation was performed on the 10th February, 1869, the woman being under the anesthetic influence of chloroform. The tibia being found diseased as well as the fibula, I amputated the limb by the circular method, which, as far as the operation was concerned, proved a fortunate selection, for subsequent examination of the foot disclosed almost total disorganization of the cuboid and fifth metatarsal bones. The edges of the skin were secured together with three iron wire interrupted sutures, after which the end of the stump was thickly coated with the oxide of zinc, creasote and carbolic acid ointment. She was given a full opiate when placed in bed, and directed to have six ounces of wine and some whiskey gruel in the twenty-four hours, with full diet, including essence of meat.

February 11th.—The opiate was repeated last night, and she had some sleep; pulse 120. Skin hot to the touch, yet she complains of being cold, and of having had rigors; tongue dirty and moist; warm jar to foot. The stump was syringed with the carbolic acid glycerine, creasote, and water lotion, and dressed with the ointment. To have a cinchona bark mixture, with aromatic spirit of ammonia, and the same diet and stimulants.

February 12th.—The pulse yesterday evening beat at 140; to-day it is 120; tongue natural. No change made in the mode of managing the stump. Same diet, &c.

February 13th.—Pulse 120, but was 140 last night. Had a bad night in spite of the opiates; skin hot; cheeks flushed; tongue furred. Two or three small bullæ have formed on the anterior and inner part of stump skin, which is reduced in temperature and is livid in colour, particularly behind. Stump syringed with the lotion previously warmed, dressed with the ointment, and covered with several layers of cotton wadding. Same diet, &c.

February 14th.—Pulse 112; had but one opiate, and slept soundly. The affected stump skin is more livid and collapsed;

fetid discharge, and a little oozing of blood from the stump. The bleeding was arrested by the insertion of pieces of lint saturated with oil of turpentine. No change in diet, &c.

February 15th.—Pulse 120; so restless that three opiates were required to procure sleep. Affected portion of stump skin sphacelated, and immediately above it a red, nearly circular, line of demarcation, which is below the level of the ends of the bones. Surface of body icterine, but the eyeballs have their natural whiteness. Stump managed in the same way, and she had the same diet, &c.

February 16th.—Pulse 120; sphacelated skin in process of rapid separation, and healthy pus coming from the line of demarcation; stump managed as usual, and a chicken was added to her diet.

February 17th and 19th.—Pulse 120; grumous and purulent discharge from stump; part of the sphacelated skin has been thrown off, exposing some muscular fibres; no change in the treatment.

February 19th and 20th.—Pulse 108 to 120; mild attack of diarrhea; nearly all the sphacelated skin has been separated, and the stump discharges healthy-looking pus. The bark mixture was omitted, and a chalk mixture, with tincture of opium prescribed. Same diet and stimulants. Stump managed in the same way.

February 21st to 26th.—Pulse 96; stump healing rapidly; the diarrhea having ceased on the 21st, the chalk mixture was discontinued, and she was given a mixture of sulphate of quinine, dilute sulphuric acid, and tincture of aconite; the XX porter was resumed; no change in mode of managing the stump.

February 27th to March 8th.—Pulse fell to 90 on the 1st, but to-day it is 120. Constipation, headache, and perspiration. The quinine mixture was stopped, and compound rhubarb pill prescribed; no other change made.

March 11th.—Pulse 90; skin natural; the end of tibia is covered with florid granulations, and the skin has retracted a little from it. To have dilute nitro-hydrochloric acid, with infusion and tincture of cinchona bark; wine reduced to ten ounces in the twenty-four hours.

March 13th.—Pulse 90. Taking advantage of her freedom from constitutional disturbance, I applied the actual cautery, at a white heat, to the prominent ends of the tibia and fibula. This was done with the intention of inducing necrosis, that the necessity of having recourse to the saw, at a future period, might be averted.

The cautery was used again on a subsequent occasion; but these

applications of the iron were followed by disintegration, rather than by *sensible* exfoliation of the ends of the bones. They were manifestly shortened by the process, and cicatrization was soon completed.

Those familiar with the literature of amputation are aware of the actual cautery having been specially recommended by Louis as an application to prominent bones, with the view of preventing conicity of stumps.^a He advised the use of the cautery for cases in which the soft parts have sloughed, "and we can expect only a superficial exfoliation that would leave the bone diminished in volume, but always projecting too far beyond the level of the soft parts."

His chief motive in recommending the cautery seems to have been for the avoidance of the alarm which the proposal to resect the bone might cause the patient. There is, in my opinion, a much more important objection to the use of the saw in cases of the kind, our experience of the affection known by the name of pyemia having taught us that recourse to a secondary sawing of the bone is more likely than the cautery to subject the patient to all the risks of systemic contamination. Many would content themselves with leaving the necrosed bone to be separated by nature. She, however, as Louis observes, may do it both imperfectly and incompletely.

The description of case for which the actual cautery appears to me equally, if not more, suitable, is that in which, after sloughing of some of the skin, the bone retains its vitality and threatens to lead to conicity of stump. This was observed in Letitia M., and notwithstanding that her case is not a very convincing example of the efficacy of the actual cautery, sensible exfoliation not having resulted from its application, it appears to me, for the reason I have just given, that Louis' suggestion deserves the reconsideration of surgeons.

Tubular Presse-Artère for the Immediate Compression of Arteries.

In the year 1793 Deschamps invented an instrument for the immediate compression of arteries, which is so arranged that the artery can be compressed directly against a horizontal bar by the tightening of a ligature, the ends of which are brought through passages in the bar (Fig. 18), and secured at the median slit in the top of the vertical stem of the instrument. Many surgeons,

^a Mémoires de l'Académie Royal de Chirurgie. Tome onzième. A Paris. 1784.

Sédillot truly remarks, have imitated Deschamps and described nearly similar compressors, which, we are told, by the same surgeon likewise, have been abandoned. Their discontinuance has been attributed by him to their liability to excite irritation in wounds, that may lead to ulcerous inflammation of the artery.

To me this does not appear extraordinary, considering the large size of several of those immediate compressors, and the additional danger incidental to the use of some of them—that of Deschamps, for example. Let us assume that it has been applied to an artery situated at some depth from the surface; there is nothing to prevent either inflammatory exudation or soft tissues from entering the spaces between the vertical stem and the ligature, that may lead to such difficulty in its removal, great mischief may ensue. Moreover, the length of the horizontal bar, with the ligature stretched between its ends and the slit, separate structures from the compressed vessel, which it is of great consequence should be in contact with it.

Possibly the little instrument I am about to describe will be as

Fig. 18.

Deschamps' *Presse-artère*.

Fig. 19.

The writer's *Presse-artère*.

short-lived as those just mentioned, yet, being when in use free from risk, excepting the risk common to all immediate compressors for arteries, it may meet with some favour.

Whether or not acupressure even, is destined to supplant the ligature time alone will decide. However, he must be very prejudiced indeed, who will not admit that the ligature acts often as a seton, maintains suppuration, and thus prolongs the chances of blood-poisoning, provided, as so many believe, that pus in contact with raw surfaces has great influence in the development of this unhappy sequela.

The action of the ligature as a seton was exemplified in Robert S. (p. 440), in whom a ligature did not separate from its vessel until the lapse of several days after the femoral artery ligature had been removed, during which time pus drained constantly from its track; and it appeared on one occasion to have been the cause of phlegmonoid suppuration.

The tubular *presse-artère* (Fig. 19), being suitable only for the immediate compression of vessels, has not so wide a range of usefulness as acupressure. But it appears to me to have a very decided advantage, especially when applied to a large vessel, inasmuch as it can be used so as not to compress any structure excepting the vessel.

Being completely under the control of the surgeon, compression by its means can be graduated to a nicety, and it can be removed from a vessel with great facility.

Before describing the *presse-artère* I should mention that I borrowed the idea of it from one of the instruments in use for the extraction of small calculi from either the urethra or bladder.

In Fig. 20 tubular *presse-artères* are represented projecting from the wound made for extirpation of the breast.

Description of the Tubular Presse-artère.—It is composed of:—
 (1.) Either a fine silver or German-silver tube, to the upper end of which a small milled button is soldered. The button facilitates the turning or screwing of the tube by the fingers of the surgeon. A female screw is formed upon the upper half of the inside of the tube.
 (2.) A steel stem having two jaws at its lower end. The jaws are perfectly smooth both on their opposed and on their outer surfaces, and have no cutting edge. They are so arranged as to allow of their opening and closing parallel to each other. At the upper end of the stem (Figs. 19 and 20) there is a handle-nut which is represented in the illustrations, hexagonal only in shape, but for

recognition in wounds the handle-nut of the *presse-artère* for large arteries should have some other form when more than one instrument is in use. The nut is fitted to the stem by means of a square mortice, that it may not turn on the stem during either screwing or unscrewing of the tube, and is secured in its place by a smaller, also a screw, nut. The upper half of the stem has a male screw cut upon it, for adaptation with the female screw of the inside of the tube. It is not essential that the tube should have the female screw, for it may be made to slide only, being pushed home by the playing of a separate screw-nut between it and the larger handle-nut. There is less chance, however, of unnecessary disturbance of the vessel during removal of the *presse-artère*, if the tube screws upon the stem, whereby a steady and an even motion is secured, so essential for the safe working of the instrument.

The length of the *presse-artère* should be regulated by the size of the limb, the vessels of which it is intended to compress.

In the case of James B. (p. 446), after I had placed a *presse-artère* on each of the vessels, I imitated, to a certain extent, the method of acupressure by the twist,^a *presse-artères* having been substituted for the needles. Thus, the *presse-artères*, with their vessels, were semi-rotated, a moderate amount of torsion being thereby insured. Not being satisfied, however, that any benefit results from the manœuvre, I have not repeated the twist in any subsequent operation.

The following advantages may be claimed for the tubular *presse-artère* over other instruments for the immediate compression of arteries:—

1. The smallness of the space it occupies in comparison with that required for Deschamps and for some other *presse-artères*.
2. Facility of application and of removal without the risk of unnecessarily disturbing the vessel.
3. Accurate graduation of the compression by means of the *fine* screw arrangement, which likewise prevents the jaws of the instrument springing suddenly off the vessel during the unscrewing for its withdrawal.

Through an unintentional oversight in my original description of the *presse-artère*, which appeared in the *Medical Times and Gazette*, no allusion is made to the forceps for the compression of

^a Acupressure. By William Pirrie, C.M., A.M., F.R.S.E.; and William Keith, M.R.C.S.E., M.D. London: John Churchill and Sons, 1867.

arteries, described by Mr. Nunneley in the *British Medical Journal*.^a

Mr. Nunneley's forceps, however, being spring-forceps, I do not regret having published the account of the tubular *presse-artère*, believing, for the reasons just mentioned, that a *presse-artère*, having the jaws under such command as the screw affords, can be worked with facility and safety.

Hematic Cyst in the Neck—Rapid Subsidence of the Swelling after Partial Tapping, followed by the Injection of a few drops of the Solution of Perchloride of Iron.

Master M., aged eleven years, an apparently healthy boy, had a tumour in the right side of the neck, which commenced as a small nodule when he was in his second year.

A short time after its discovery an exploratory puncture was made into it by the family surgeon, since deceased. Some bloody fluid was evacuated. The tumour continued, nevertheless, enlarging, and in a few months was again punctured. On that occasion likewise bloody fluid escaped. Various remedies were applied to the tumour, which were of no avail in checking its development, and on the day of my first visit to him it presented the proportions seen in Fig. 21.

It occupied the greater portion of the right side of the neck; was pendulous over the clavicle, and most prominent just above that bone. It neither pulsated, nor could be reduced by pressure. Fluctuation was very distinct.

Being so prominent, and its walls very thin, I sought for translucency with artificial light, none of which was transmitted. The integument over the most prominent part was bluish in colour. The tumour felt a little uneven, as if it were lobulated. It was not painful, but the movements of the arm were impeded.

On the 18th of November, 1868, having made with a grooved needle an exploratory puncture into the cyst, dark fluid blood, seemingly normal in consistence, was discharged with about the force that the fluid of a hydrocele of the tunica vaginalis runs from a canula. Half a saucerful of blood having escaped the boy became faint, and the flow had to be stopped. Before applying a bandage I examined the partially emptied cyst, and felt in its deepest part something like a hard obliterated vein. On that

^a For October 12, 1867.

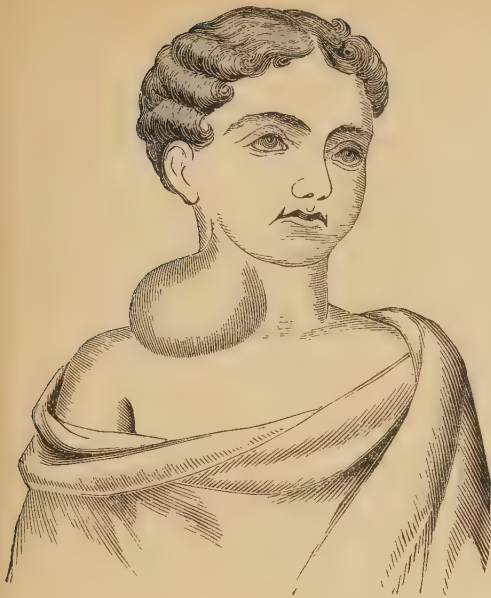


Fig. 26.



Fig. 25.



Fig. 21.—Hematic cyst of the neck.

Case of Master M——, aged eleven years.

Fig. 24.—Silvery looking casts and octahedra of oxalate lime.*

Fig. 25.—Oat shaped calculus passed with the urine.

Case of Mr. B——, aged thirty-five years.

Fig. 26.—Lithic acid crystals and oxalate of lime octahedra, from one specimen of urine. Drawn with Nachet's camera. 130 diameters.

Case of Mr. ———, aged fifty years.

occasion I manipulated the cyst with the intention of exciting irritation.

November 21st.—Cyst tender for a little distance around the place of puncture, and as full as it had been previous to the tapping of the 18th ult. I tapped it a second time, and drew off through a fine canula about an ounce of blood without the super-vention of faintness. Then I passed into the cyst a piece of stout silver wire roughened at the end, and scratched the inner wall. After which I injected a few drops of the ordinary solution of perchloride of iron. Finally, a pad of lint was placed on the puncture, and secured by a bandage.

November 23rd.—The cyst remained stationary until the 22nd, when it recommenced enlarging, and the evening of that day was bigger than previously. It had become exceedingly tender also, and very firm. There was no fever. The pad and bandage caused such pain they were removed.

November 24th.—Tumour excessively tender, but reduced a little in size. Movements of arm less impeded.

November 28th.—Tumour smaller, and tenderness on the wane. The hard substance could be easily distinguished.

November 29th.—Tumour further diminished, and tenderness had ceased. Pressure applied by means of a suitable apparatus.

December 2nd.—No sign of fluid being in the cyst. Pressure continued.

March 29th, 1869.—Cyst not refilling, and but little trace of the indurated obliterated vein-like substance.

June, 1869.—Something resembling a cyst wall could be felt. The induration had quite disappeared.

September, 1869.—No sign of re-appearance of the tumour.

That the pathology of hematic cysts has not received the attention so important a subject demands, may be inferred from the fact of the benign hematic cyst being confounded with one of the varieties of malignant disease.

According to Cruveilhier, to whom we are indebted for an excellent account of hematic cysts, they may have either a traumatic or non-traumatic origin, so that in whatever way the blood is effused, if it be not eliminated, a bag of isolation may form around it. This bag, originally a false membrane, becomes rapidly organized. He considers that the solid clot formed by the blood, deprived of its serum, is broken up by degrees and absorbed, either immediately or after dilution in serum, the secretion of

which has been provoked by its presence. The cyst may be reduced in proportion as the blood is absorbed, and end by disappearing, owing to adhesion of its walls, or it may survive the effusion, and persist during the whole of life as a closed bag, the walls of which, as if tattooed by the blood, thus preserve the record of their origin.

Cruveilhier describes two very distinct varieties of hematic cysts. In the first and most frequent, the contents are blood, more or less altered in colour and consistence. In some of the cases the blood has been found very concrete, as if desiccated; of a jet black colour, and adherent to the cyst. In the second variety the contents are either altogether or in part formed of limpid serum, which has replaced the blood in proportion as this has been absorbed. He calls these cysts *serous hematic cysts*, and thinks it not absolutely impossible for an hematic cyst to be transformed into a *pure serous cyst*, without any trace of effusion of blood, so that its true origin cannot be determined. In the immense majority of cases, however, the hematic origin of the cysts is unequivocally revealed. Hematic cysts are divided by him into:—1. *Cysts of the free areolar tissue*; 2. *Cysts of the serous and synovial cavities*; 3. *Cysts formed in the substance of organs*; 4. *Hematic cysts of encephaloid cancer*.

The hematic cysts of free areolar tissue not being distended by the contained liquid, are so remarkably flaccid that fluctuation may escape an inattentive examination. These cysts are generally oblong. The largest hematic cyst seen by Cruveilhier occupied the left lateral and inferior region of the chest in a very fat woman. The tumour soft, flaccid, and distinctly circumscribed, was ten inches in its transverse, and six inches in the vertical diameters. He is of opinion with M. Morel-Lavallée that the serous hematic cysts float and *tremble* during the movements of the parts on which they repose, and manifestly *undulate under even the influence of the breath of the observer*. When the thin liquid is made to pass from one part of the bag to the other, the movement resembles that which takes place in a bladder when half full. The liquid contents of the cysts are ordinarily perfectly limpid, and may be either pale lemon in colour, or of the colour of venous blood.

In the case of Master M., I remarked that the blood-cells of every specimen of the fluid I examined ran rapidly into *rouleaux*. A few plates of cholesterine were seen in two or three of the specimens. The walls of hematic cysts are usually so highly organized that they would, Cruveilhier thinks, persist through life were art not

to interfere. In some of the cases recorded in surgical works tapping followed by pressure effected a cure, simple means that should be tried before having recourse to more severe measures. Hematic cysts, as already mentioned, have been mistaken for encephaloid cancer. Cruveilhier alludes to a case of this kind, which was so mistaken, and the breast extirpated. It did not contain a trace of cancerous substance. He believes that hematic cysts of the thyroid gland are of frequent occurrence. I had under my observation for a few weeks an enormous cyst of this gland in a female of middle age. I tapped it on three occasions, when venous-like blood only was discharged.

Cruveilhier reminds us that the hematic cysts of encephaloid cancer may be either without sound and non-pulsatile, or have the souffle of an ordinary aneurism, the hand, when applied, being raised with the sensation of *fremissement cataire*. It may be conceived that these pulsatile and murmuring cysts,^a placed over the track of a superficial artery, might be mistaken for an aneurism, and be operated upon as such. Mr. Guthrie, for instance, tied the internal iliac artery for a murmuring encephaloid situated over the gluteal artery, which he had taken for an aneurism.

When cysts appear to contain blood from their commencement, Mr. Paget is of opinion that it always remains fluid until let out; while that which collects by hemorrhage into a serous cyst is generally either partially or wholly coagulated. Some of these cysts are, he observes, traceable to vascular nævi, while others are of proper origin. He has met with sanguineous cysts having a columnar or fasciculated structure interiorly, resembling the right auricle of the heart. Cysts of this kind had their origin in vascular nævi.^b

Some sanguineous cysts, without any erectile formation, appear to Paget to be derived from portions of veins dilated, obstructed, and shut off from their stream of blood; but, in a case supposed to be of this kind, and mentioned by him, no vein could be traced into the cyst. He has stated recently, however, that veins are found opening into the cysts.^c

Hernia Knife: constructed to prevent the Blade being overlapped by the Bowel during Herniotomy.

Every practical surgeon must be aware how liable a protruded portion of bowel is to be cut, should it overlap the edge of the

^a Cruveilhier.

^b Surgical Pathology. 1st ed., Vol. ii., p. 48.

^c Holmes' System of Surgery. 1st ed.

knife in the ordinary operation for the relief of a strangulated intestinal hernia: one of the accidents, for the avoidance of which, the knife of Sir Astley Cooper and some other hernia knives were designed.

The instrument (Fig. 22) introduced here to the notice of the surgeon has been planned for the purpose of preventing the bowel overlapping the blade; and may be passed to the seat of stricture without the finger as a guide, more space being thereby reserved for our sight during a very critical stage of the operation.

I am aware of Le Dran's knife having a provision for the attainment of the same object, in the two wings that project from its back.^a

This can be equally well attained by the more simple plan of attaching a broad back to the blade (Fig. 22). In my knife the broad back is secured to the blade by a rivet at the anterior end, and a screw posteriorly. It projects $\frac{3}{10}$ ths of an inch beyond the end of the blade; and laterally, about $\frac{2}{10}$ ths of an inch in the broadest part. It tapers towards, and terminates near, the handle.

The blade for $\frac{6}{8}$ ths of an inch from the anterior end has a cutting edge which terminates a little behind its greatest convexity. From this point to the handle the edge is blunt and does not cut. The most convex portion of the cutting part of the blade is $\frac{2}{8}$ ths of an inch in depth.

With this knife, unless in very awkward hands, a cutting accident to a protruded bowel is barely possible; and it is so shaped and sized that it can be carried in the ordinary surgical pocket-case.

*Stricture of the Urethra—Extravasation of Urine,
without straining to pass the Water.*

The following case is an excellent example of urinary effusion irrespective of straining to pass water, a form of extravasation unnoticed by some



Fig. 22. — The writer's hernia knife, having a broad back for protecting the bowels during herniotomy.

^a Observations de Chirurgie. Par Henry François Le Dran. Tome second, A. Paris, 1731.

writers on the surgery of the urinary organs. It shows, likewise, that urine may be retained in the bladder after the urethra has given way, and when there are external openings even in the perineum for its free escape.

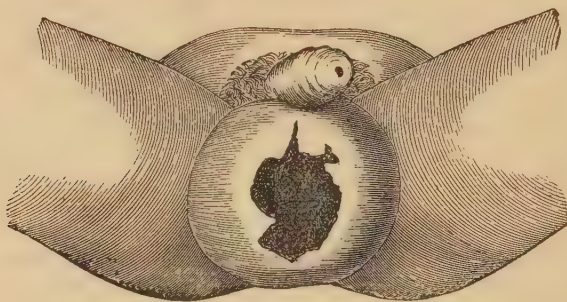
Robert R., aged forty-seven, was admitted to the Adelaide Hospital, Dublin, on the 5th June, 1867. Twenty years previously, the urine stream began, soon after a gonorrhea, to diminish in size. At the end of eight years, having become exceedingly fine, retention occurred. Catheters were then used with him for the first time; but not having had perseverance for dilatation to full capacity of canal, the stream continued small. Three weeks before admission to hospital, the stream became rapidly finer; the desire to micturate very frequent, the voided fluid being thicker than was usual with him. A fortnight after the rapid contraction of the canal commenced he had, during a fit of coughing, a sensation of the giving way of something in the penis. This was followed by the discharge of a few drops of blood from the urethra. In two days more, complete retention supervened, and Dr. Head relieved the bladder with a No. 4 gum-elastic catheter. Dr. Head feeling some induration in the perineum, ordered him to hospital at once, and gave directions that the catheter should not be removed from the bladder. It was withdrawn shortly afterwards by the patient. Dribbling of urine then set in and continued until the onset of the diffusion of urine. At four o'clock the evening before his admission to hospital, being seated before the fire, perfectly free from vesical uneasiness, the urine passing involuntarily, he was *seized suddenly* with a burning feel in the scrotum, and had to lie down. Swelling of the scrotum was perceptible in a few minutes, which increased so rapidly, and was accompanied by such prostration, that Dr. Symes was requested to visit him, who, recognizing urinary infiltration, passed a No. 4 catheter into the bladder, and made some deep incisions in the scrotum.

Next day, at noon, Robert R. was brought to hospital, but before I saw him, a No. 4 gum-elastic catheter had been introduced without difficulty, and a good deal of urine drawn off, by Mr. Maxwell Reilly, one of our most intelligent clinical clerks. The scrotum was much swollen, and the prepuce so infiltrated the glans could not be exposed. A sunken, large, irregular, prune-coloured, almost black, slough, occupied the front of the scrotum, and a smaller one was situated nearer the anus. The surrounding structures pitted when pressed. The hypogastrium and the iliac regions had a

symmetrically disposed erysipelatous hue. Pressure of the former increased the flow of urine through the urethra and the scrotal incisions. The pulse was frequent and very weak; the skin cold; the countenance anxious, and the tongue dry and brown. I made three additional incisions in the scrotum which gave exit to a good deal of bloody pus and urine, and a few punctures in the prepuce allowed serous looking fluid to escape. To have ten ounces of wine, two of brandy, essence of meat, milk, &c. daily; and a full opiate at night. The scrotum to be poulticed with the linseed meal poultice moistened with a solution of carbolate of soda. Catheter to be left in the bladder.

January 6th.—Pulse 92; skin slightly increased in temperature; tongue cleaner and moister. The erysipelatous redness—still symmetrical—had extended down the outside of each thigh, its margin being well defined. Penis and scrotum not so swollen, and the incisions were not so dirty. The central eschars having coalesced, a large, irregular, sunken, dead mass was formed (Fig. 23.)

Fig. 23.



Sloughing caused by extravasation of urine.
Case of Robert S—, aged forty-seven years.

Though urine flowed freely through the scrotal openings, particularly through the most depending one, he had a desire to pass water. The catheter *à demeure* being occluded by bloody mucus, and so injured by the alkaline urine as to be of no further use, a new gum-elastic (No. 4), was introduced and a good deal of fetid, purulent, bloody, alkaline urine drawn off. The hypogastric uneasiness having been much relieved by the catheter *à demeure*, it, at the request of Robert R. was not withdrawn. Cinchona bark mixture in effervescence. The other treatment was continued.

January 7th.—Pulse 120; a good deal of bloody urine passed occasionally through the catheter. The scrotal flow escaped in great part through the most depending opening. The urine was alkaline, depositing ropy mucus and blood cells. Allowed to settle, the supernatant fluid was not more albuminous than could be explained by the presence of *liquor puris*. Scrotal tumefaction subsiding; countenance much improved; tongue cleaner. To have instead of the effervescing cinchona bark mixture, simple infusion of cinchona bark with dilute nitro-hydrochloric acid.

January 8th.—Pulse 100; the urine flowed in great part through the catheter; erysipelatous redness paler. Fetor having increased, the scrotum was dressed with a carbolic acid, creasote and oxyde of zinc ointment. Catheter *à demeure* replaced by a larger instrument. Mutton chop with his diet.

January 10th.—Central eschar partially separated; incisions plugged by protruding dead areolar tissue which I excised; no sign of erysipelas; urine passed in quantity through the catheter *à demeure*. It was changed for a No. 6. Allowance of wine reduced and an equivalent of brandy ordered.

January 11th.—More dead areolar tissue and greater portion of central eschar have separated. The detaching of the latter exposed a wide chasm, but the testes were not visible. Alkaline urine flowed through both catheter and scrotum. I removed, as far as practicable, all dead tissue. Benzoic acid added to the cinchona bark mixture.

January 12th.—Pulse 104; painful diarrhea; a quart of smoky urine of *spec. grav.* 1.010, passed through the catheter. Testes could be seen at the deepest part of the chasm. The right gland had its natural appearance; the left one was covered with granulations. I excised more dead areolar tissue. Scrotum granulating. Purulent discharge from the urethra. The cinchona bark mixture was changed for sulphate of quinine, dilute sulphuric acid, and rose water.

January 14th.—Pulse 112; catheter *à demeure* discontinued, the urine being drawn off with a catheter three times daily.

January 15th.—Albeit the urine flowed freely through the perineum, distension of the bladder with stillicidium urinæ were so harassing, the use of the catheter *à demeure* had to be resumed. Numbness of both legs. Ten grains of benzoic acid three times daily.

January 16th.—Catheter *à demeure* obstructed, and another

substituted; urine becoming less alkaline; the legs have recovered their natural sensibility.

January 17th.—Catheter changed for a No. 6 (*à demeure*).

January 18th.—Urine flowed through both catheter and perineum. Cinchona bark mixture, and dilute nitro-hydrochloric acid substituted for the quinine mixture.

January 25th.—Urine acid and less purulent.

February 11th.—Pulse 96. The urine continued acid until the 10th, when it became again alkaline. Stillicidium persisted. The urine had ceased to pass through the central chasm, which was closing rapidly. Catheter *à demeure* withdrawn, and ordinary catheterism practised three times daily. No command over the bladder. His stomach being irritable, dinner pills and a prussic acid mixture with creasote were prescribed.

February 18th.—Pulse 90; vomiting had ceased; urine alkaline and less albuminous. *Spec. grav.* when filtered 1.005. The prussic acid mixture omitted, and to have citrate of iron and ammonia with infusion of calumba. No. 8 gum-elastic catheter used.

February 21.—Urine acid since the 21st; *spec. grav.* when filtered 1.005.

March 5th.—Stomach irritable; subnitrate of bismuth in a mixture with prussic acid.

March 10th.—Irritability of stomach unchecked; nitrate of silver pills substituted for the bismuth mixture, and a blister was made with vesicating collodion in the epigastrium.

March 11th to 14th.—Stomach quiet; quinine mixture instead of the nitrate of silver pills.

March 20th.—Regained some power over bladder.

March 25th.—Recurrence of stillicidium urinæ. Has been up daily since the 21st. No. 9 catheter used. *Spec. grav.* of the urine when filtered 1.010.

March 28th.—Incontinence of urine at night.

April 18th.—Nocturnal incontinence of urine occasional only. No. 10 gum-elastic catheter used.

May 11th.—No. 11 catheter passed. To have an infusion of triticum repens, with dilute nitro-hydrochloric acid.

May 19th.—No. 12 catheter introduced on several occasions since the 11th. Scrotum firmly consolidated, and he had full power over the bladder. The urine deposited a good deal of mucus and some bodies having the characters of pus cells.

May 18th to 25th.—No. 13 catheter used. The infusion of

triticum repens changed for an infusion of alchimella arvensis. The former did not appear to influence the urine.

August 20th.—Employed actively at carpentering. A trace only of pus in the urine. In September he reported to me that much benefit appeared to result from the use of the infusion of alchimella arvensis.

Infiltration of urine in cases of stricture has been attributed by many writers solely to straining for the expulsion of the water. The case of Robert R., as I have mentioned, proves that urinary effusion from stricture may happen irrespective of such straining efforts. There are authors, no doubt, who speak of the little part taken by the bladder in disseminating the urine through the areolar tissue. Boyer, for example, alludes to the inactivity of the bladder in urinary effusion under certain conditions of this viscus. That he considered the bladder might be passive *during* the urinary dissemination will be seen by the following observations of his upon the matter:—

“When the opening in the urethra is greater than in the preceding case, and the canal so contracted that the urine can escape only with the greatest difficulty, or is even completely retained, this liquid passes into the perineal areolar tissue, disseminates itself in the scrotum and forms a *dépôt* by infiltration. This *dépôt* extends to the penis and superior part of the thigh, sometimes reaches even the abdomen, hypochondria, and sides of the chest. I have seen a case in which the infiltration of the urine extended to the loins and to the back as far as the scapula.”

“When the retention of urine is complete and the rent in the urethra very great, the infiltration of this liquid takes place with astonishing promptitude, and extends so much the further, according as the bladder, notwithstanding its distension, has preserved all its contractile force. *But when this force is destroyed, although the rent in the urethra may be very great, the infiltration of urine is slower and extends less, because then this liquid, instead of being expelled from the bladder by the contraction of this viscus, escapes from it only by overflowing. In this case the accidents of the retention of urine cease as soon as the urethra is pierced, but the bladder remains distended and continues to form a tumour in the lower part of the abdomen.*”^a

It is curious that Boyer observed retention of urine but once

^a *Traité des Maladies Chirurgicales.* Par M. Le Baron Boyer. Tome neuvième. A Paris. [Not italicized in the original.]

after infiltration had commenced, there being good grounds for the supposition that it is by no means so exceptional an occurrence. It happened frequently in Robert R., and ceased within a few days only of the healing of the scrotum.

The probabilities being in favour of the view that partial retention of urine is not an uncommon event after a communication has been formed between the urethra and areolar tissue, the practice inculcated by Desault in the management of persons suffering from urinary effusion may lead to great mischief:—

“The name of *boutonnaire*,” he mentions, “has been given also to the opening of urinary abscesses situated in the perineum, because it has happened sometimes that through the fissure in the canal, a canula has been passed into the bladder; but this canula is perfectly useless; placed beyond the obstacle (stricture) it cannot be of any service in re-establishing the natural passage of the urine.”^a

It is to be hoped that this teaching has not led to neglect of the bladder after the urethra has given way. Instead of being useless, as Desault supposed, a canula passed through the perineum into the bladder may be of vast service, retention being so liable to occur in these cases.

Retention of urine following rupture of the urethra did not elude the sagacious vigilance of Sir Benjamin Brodie, who speaks thus regarding it:—“The escape of the urine (into the perineum, scrotum, &c.) is followed by a relaxation of the stricture. You will probably now be able to introduce a catgut, or some other bougie (a catgut is to be preferred) through the stricture into the bladder. If you can do so, it is so much the better. Introduce the bougie; let the patient be held in the position you would place him for lithotomy; make an incision in the perineum; feel for the catgut bougie, make an incision on it, and, of course, you make an opening in the urethra. Through this opening, the catgut bougie serving you as a director, introduce a short gum catheter from the wound in the perineum into the bladder. You will generally find, *although the effusion of urine has taken place that there is still a large quantity of urine left in the bladder.*”^b

It was so in Robert R. when admitted to hospital, and frequently afterwards, rendering catheterism *à demeure* advisable.

^a Œuvres Chirurgicales. De P. J. Desault. Par Xav. Bichat. A Paris, 1813. Tome troisième.

^b Diseases of the Urinary Organs. 3rd ed. Pp. 44.

Brodie does not allude to urinary effusion from stricture without previous straining to pass water; and yet in Robert R. the urine was disseminated rapidly through the areolar tissue exclusive of any effort of the kind.

Casts in Non-Albuminous Urine containing Octahedra of Oxalate of Lime—Passage of a Small Calculus—Recovery.

Persons who suffer from renal irritation pass occasionally with urine free from albumen, a flocculent substance which may be composed of bodies so like casts that I have little, if any, doubt of their being such. It is important to bear this in mind, lest temporary irritation be confounded with permanent kidney disease. In two cases of the sort observed by me, repeated careful examination failed to detect albumen in the urine, a point of diagnostic significance; for should colourless casts, or casts discoloured by urates, be found in urine from which albumen is permanently absent, either a small calculus or lithic acid may be causing an amount of irritation just sufficient to induce their formation. If, therefore, the calculus be expelled, or the tendency to the deposition of an excess of urates corrected, the casts will probably disappear from the urine, and recovery ensue.

My attention was drawn a few years ago to this subject by some published observations of Dr. Lionel Beale, one of the earliest English writers to describe the casts found in non-albuminous urine. In some of the cases seen by him these casts were found in urine of high specific gravity, containing an excess of urea and urates. He seems to consider that urine so constituted irritates the mucous membrane. This may have occurred with one of my patients who for months voided lithic acid crystals in abundance, the urine being all the time free from albumen. The casts had a silvery hue, and disappeared simultaneously with the disappearance of the crystals. Sometimes, Dr. Beale remarks, the casts are so dark and granular, owing to the deposition of insoluble urate in the substance of the mucus,^a they may be mistaken for the true casts of confirmed degeneration of the kidney.

Mr. E., aged thirty-five years, had been under my notice on various occasions for urethral irritation extending backwards to the neck of the bladder. Oxalate of lime octahedra usually abounded in the urine, some specimens of which were loaded, at intervals, with a whitish flocculent substance, formed, in great part, of silvery-

^a He considers the casts to be formed of mucus.

looking bodies which resembled in shape and size some varieties of renal casts. The urine was free from albumen.

In 1862, during my absence from home, Mr. E. was attacked with violent pain, which radiated from the anterior superior spinous process of the right ilium to the perineum. He was seen immediately by Dr. Fyffe, quartered at the time in Dublin, who, being acquainted with the symptoms experienced previously by Mr. E., considered it probable that the new symptoms were caused by a calculus, and treated him accordingly.

Upon my return to Dublin, Dr. Fyffe and I visited Mr. E. We found him suffering from urethral irritation, with "uneasiness" in the neck of the bladder. He complained of shooting pains, felt at intervals between the perineum and anterior superior spinous process of the right ilium. Oxalate of lime octahedra abounded in the urine, even when first voided. This was acid and free from albumen, but some of the specimens were milky in appearance from the presence of whitish flocculi, nearly altogether composed of silvery-looking bodies resembling renal casts in shape (Fig. 24). The frequent co-existence of this description of cast with such quantities of oxalate of lime in the urine of Mr. E., led me to adopt the view of Dr. Fyffe—that there had been some cause of kidney irritation, and that it was most probably of a calculous nature.

Of the remedies we tried, the greatest benefit appeared to arise, for a time at least, from the use of an infusion of *alchimella arvensis*, with muriated tincture of iron and hemlock juice.

The symptoms became aggravated on the 21st of November, 1862, the desire to pass water being frequent, with great uneasiness referred to the neck of the bladder, and tormenting urethral irritation. The urine was at the same time highly acid and loaded with silvery-looking casts, commingled with numerous crystals of oxalate of lime octahedra. It did not contain albumen. Mr. E. continued to take the mixture, the urine cleared, the vesical symptoms subsided, and he remained tolerably well until the 24th of November, when the urine became again milky in appearance from the presence of silvery-looking casts, the oxalate of lime octahedra being as numerous as ever in it. It was not albuminous; the reaction was acid, and the spec. grav. 1.017. The bladder was very irritable and micturition frequent—symptoms which ceased after the expiration of a few hours, and the urine eventually cleared. He persevered with the use of the *alchimella arvensis* mixture, and partook freely

of diluents with the object of expelling a calculus in case of one being present in the genito-urinary tract.

A very eminent surgeon (since deceased) met Dr. Fyffe and myself in consultation upon the case. He read the symptoms differently, considered that they were caused by incipient prostatic disease rather than by a calculus, and suggested treatment based upon this view. According to his advice cod-liver oil was injected into the rectum three times daily; green iodide of mercury ointment was rubbed into the perineum, and a mixture composed of buchu, hyosciamus, and colchicum prescribed. The urine deposited silvery-looking casts again on the 29th of November, and in addition to being loaded with oxalate of lime octahedra, contained many rhomboidal crystals of lithic acid. Our consultant's remedies were continued. Teasing diarrhea set in on the 6th of December; and he had great irritation in the neck of the bladder, with occasional pain in the glans penis.

The treatment recommended on the 26th of November was discontinued. An opium enema was given, and he was prescribed pil. plumbi c. opio. He suffered for a few hours a good deal from that attack. However, he was at last seized suddenly with a desire to pass water, experiencing great difficulty in the attempt to void it; but the difficulty ceased as suddenly as it had commenced, on the escape of a small calculus (Fig. 25) from the urethra. The calculus was the size of an ordinary oat grain, fawn-coloured, finely nodulated on the surface, and had extremely sharp ends.

I am unable to describe its chemical composition or its structure, it having been lost in transit by post to Mr. Baker.^a

Mr. B., I am happy to say, has had no return of symptoms referable to calculous disease.

Silvery-looking Casts; Lithic Acid Crystals and Octahedra of Oxalate of Lime in Urine free from Albumen.

The subject of this case was positive that he did not pass a calculus when he was under my care, a period of many months, yet I am inclined to attribute the passage by him of silvery-looking casts with the urine, to irritation of the kidney from such a cause, the urine being loaded with lithic acid crystals, while the subjective symptoms were referred to the right lumbar region, groin, thigh, and testicle.

In July, 1862, I was consulted by a gentleman, fifty years of

^a Holborn, London.

age, for symptoms he attributed to a strain and to hard study, but of the first he was doubtful.

A short time subsequent to the period of the supposed strain he was seized, during a walk, with pain in the right groin and testicle, which was followed by intermitting pain in the right loin and thigh. He was not aware of having passed a urinary calculus.

July 18th, 1862.—Feeling of weight in the right testicle, and pains shooting from it to the right loin. Epididymis of the same side indurated, the result of a previous attack of inflammation. Just behind Poupart's ligament, of the right side also, there was a tender deeply-seated spot, where I fancied that a little hardness could be felt. The constitution did not appear to sympathize with those symptoms. The urine deposited a large quantity of light-coloured urates, and every recent specimen also contained oxalate of lime octahedra. An iodide of potassium mixture was prescribed, and the iodide of lead ointment was ordered to be rubbed into the inside of the right thigh.

July 19th.—The urine deposited numbers of remarkably clean lithic acid crystals, mingled with oxalate of lime octahedra (Fig. 26).

July 31st.—The tender spot behind Poupart's ligament not so sensitive to pressure. Shooting pains—most severe at night—between right groin, loin, and shoulder. Urine free from crystals. To have, instead of the iodide of potassium mixture, one containing iodide of barium, and the loin to be rubbed with an opium, belladonna and aconite liniment. Although the shooting pains are not so severe they are still very troublesome; scarcely any tenderness now behind Poupart's ligament. He obtained much relief from the application of a button cautery to the right loin. Some syrup of iodide of iron was added to the barium mixture.

August 15th.—Feeling of weight in testicle. Very severe shooting pains between right loin, groin, and thigh. No trace of induration behind Poupart's ligament. The urine—non-albuminous—deposited numbers of very clean lithic acid crystals, of the same shape as those of Fig. 26, and a whitish flocculent substance composed of cast-like bodies, with a silvery hue which closely resembled those passed by Mr. E., the subject of the last case.

August 16th.—The urine deposited numerous stellate crystals of lithic acid and some brownish casts. It was free from albumen.

August 17th.—The urine let fall a large deposit of rhomboidal and of stellate lithic acid crystals, mixed with oxalate of lime octahedra. It continued free from albumen.

Fig. 27.

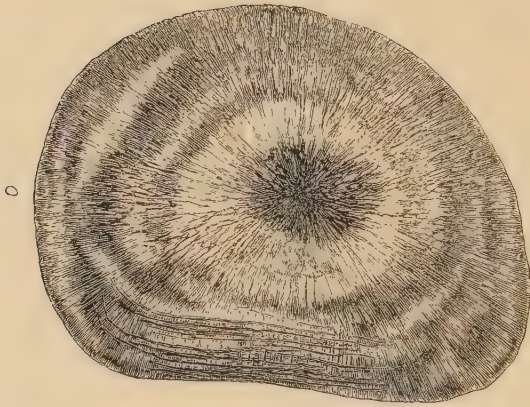


Fig. 28.



Fig. 27.—Section of hempseed calculus. Drawn with Nacet's camera. 60 diameters.

Fig. 28.—Section of hempseed calculus. Drawn with Nacet's camera. 36 diameters. The small figures represent the real size.

Observe the difference in amplification between these figures.

Case of Mr. —, aged seventy years.

I need not trouble the reader any further with reports of the case, and will merely say, that after a few weeks' treatment directed to the state of the general health, lithic acid ceased to be deposited, and the casts disappeared from the urine. The patient afterwards left this country, and I believe is now perfectly well. Notwithstanding that he was unaware of having passed a calculus, it appears to me probable that the presence of the casts depended upon more than the excretion of an abnormal quantity of urates, the symptoms having been referred to one side only.

As the casts voided with the urine by these gentlemen did not resemble those found either in the bladder or prostatic ducts, I have located their origin in the kidney. At all events, whenever casts are only occasionally present in urine, without other and more persistent evidence of renal disease, we should hesitate before concluding that the kidneys have undergone incurable organic alteration.

Six hundred Hempseed Calculi passed with the Urine in the course of a few months—Repeated attacks of Hematuria.

I exhibited at one of the meetings of the Surgical Society of Ireland some microscopic sections of urinary calculi, most skilfully cut for me by Mr. Charles Baker, of London.^b The engravings of two of the sections not being completed in time for the meeting, I postponed their publication until now (Figs. 27, 28.) The gentleman who passed the calculi was beyond seventy years of age, and voided about six hundred in a few months. They were of the same colour, and the analysed ones were identical in chemical composition. Several of those cut by Mr. Baker corresponded likewise in structure. The nuclei of all the latter are formed of delicate needle-shaped crystals. The colour of the outer surface of the calculi was that of the hempseed, and although smaller, they were similar to it in shape, with the exception of a few having facettes.

The analysed specimens were insoluble in acetic acid; soluble to a great extent in dilute nitric acid, the resulting solution, when neutralized with ammonia, becoming milky-white; and several were converted into caustic lime under the action of the blow-pipe.

^a For further information regarding this subject, consult the third edition of Dr. Lionel S. Beale's work on "Kidney Diseases, Urinary Deposits, and Calculous Disorders," &c. And Dr. Edmund A. Parkes' treatise on the "Composition of the Urine in Health and Disease."

^b 244, High Holborn.

The patient experienced repeated attacks of hematuria, each of three or four days' duration. The prostate was enlarged. He died with symptoms of a weakened heart, and melena was observed immediately before death.

Lithic Acid Crystals—Agglomerate Dumb-bells—Separate Typically-shaped, and separate Deformed Dumb-bells of Oxalate of Lime—Octahedra of the same Salt—All having been present in a specimen of Urine voided by an Epileptic Patient.

There are few questions of more practical interest than that relating to the early formation of the nuclei of urinary calculi; those nuclei formed in some portion of the urinary apparatus independent of mucus, epithelium, fibrine, blood-clots, or of foreign bodies introduced into the bladder from without, &c.^a

If we find adherent masses of oxalate of lime dumb-bells in the urine of a person affected with lumbar pains, it is more than probable that dumb-bells similarly adherent exist in the kidney, and if not expelled, may form the nucleus of a calculus.

Mutually adherent oxalate of lime dumb-bells are sometimes accompanied by crystals of lithic acid (Fig. 29.) In this figure we have oxalate of lime dumb-bells, aggregated and separate; oxalate of lime octahedra, and crystals of lithic acid, so that in the specimen of urine which contained them there were the materials for the formation of a calculus, having adherent dumb-bells as the nucleus. I tried frequently to segregate the dumb-bells with needles, but without success, which renders it probable that they were more or less united by crystalline deposit. Should similar adherent dumb-bells exist in the kidney, the chance of their becoming invested by lithic acid is by no means slight.

It is almost unnecessary to remind the reader that oxalate of lime octahedra may form both before and after the urine leaves the bladder. Indeed, some persons consider that in the majority of instances they form only after the urine has left that viscus. The dumb-bells, on the other hand, although present in the urine when it is passed, do not increase afterwards in size or in number.^b

In the specimen of urine containing the crystals of Fig. 29, there were likewise many deformed dumb-bells, rosettes, and crossed or dove-tailed dumb-bells (Fig. 30). The crystals of this figure are, with barely an exception, misshapen, which condition of crystal

^a Beale.—Ibid.

^b Beale.—Ibid.

Fig. 29.

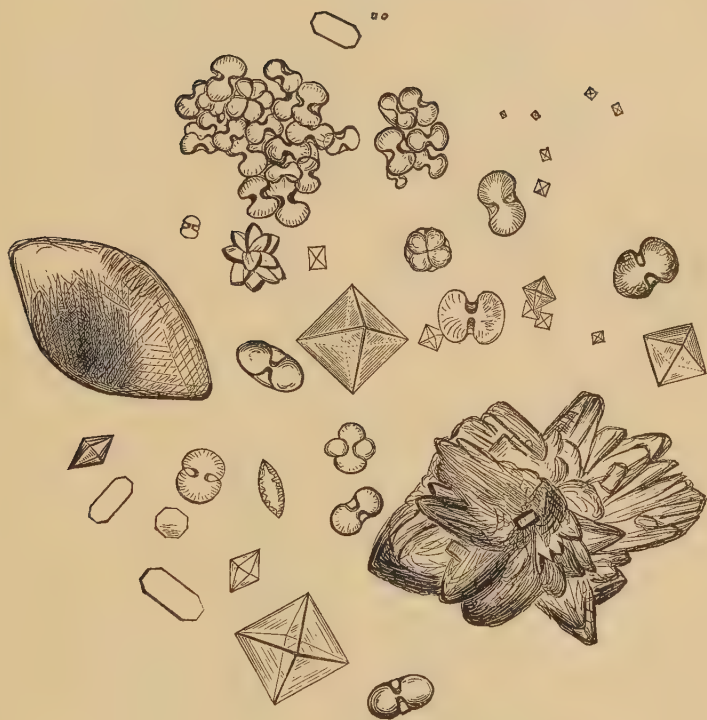


Fig. 29.—Lithic acid crystals; adherent dumb-bells; separate dumb-bells; crossed or dovetailed dumb-bells and octahedra of oxalate of lime. Drawn with Nacet's camera—130 diameters.

Fig. 30.

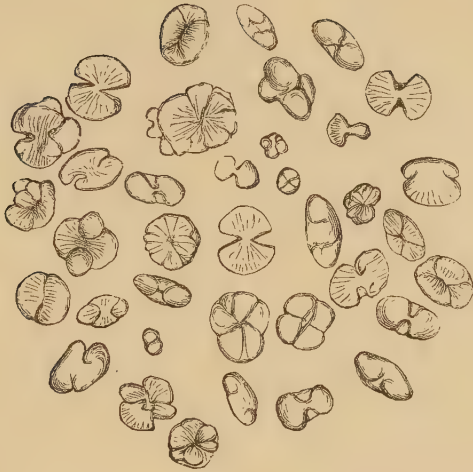


Fig. 31.

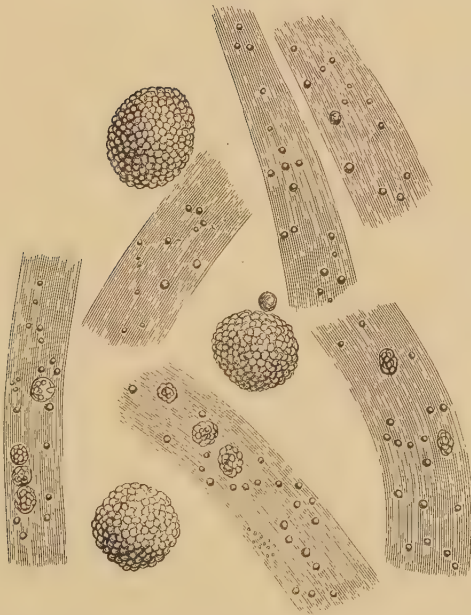


Fig. 30.—Deformed dumb-bells; rosettes; crossed or dove-tailed dumb-bells of oxalate of lime. This and Fig. 29 from a specimen of urine passed by an epileptic under the care of Dr. Head, in the Adelaide Hospital. Drawn with Nacet's camera. 130 diameters.

Fig. 31.—Oily casts and granule cells.

Case of —, aged seventeen years.



seems to throw some light upon the mode of formation of the dumb-bell and its modifications. The investigations of Mr. Rainey have, I believe, proved to his mind that viscid organic matter prevents crystalline substances from assuming their usual shapes, and causes the crystalline material to be deposited in the spherical or the dumb-bell form. Whether or not this view of Mr. Rainey's be generally adopted, I am not aware; yet it appears to me that misshapen crystals, like many of those in Fig. 30, render the existence of a viscid organic basis in the dumb-bell exceedingly probable. For, should this viscid basis be in excess of the crystalline deposit necessary in the construction of the perfect dumb-bell, the crystals may yield to pressure in the kidney and fail to exhibit the typical form when they leave the gland.

Renal Disease, a Cause of Symptoms affecting the Bladder.

It was well known to Morgagni that calculi in the kidney may produce symptoms referable to the bladder rather than to it. In one of the cases of this description alluded to by him, but little pain was felt in the region of the kidney; whereas the pain in the bladder was so excruciating that the physicians who attended the patient entertained no doubt of the disease being in it. Dissection, however, revealed no morbid appearance in the bladder, but there were large ramifying calculi in the kidney.

Sir Benjamin Brodie has shown that other diseases of the kidney may affect the bladder in the same manner, and that the worst symptoms of irritable bladder may occur as a consequence of kidney disease, the bladder itself and the organs in immediate connexion with it having been free from disease in the first instance.^a He corroborates this fact by two cases of renal disease. The subject of one of these cases voided the urine frequently, and suffered from pain extending along the course of the urethra. The patient was able to empty the bladder by his own efforts, and the urethra was free from stricture. After death "the morbid appearances observed in the bladder were so slight, compared with those in the kidney, that it seemed impossible to doubt that the last-mentioned organ had been the seat of the primary disease, and that the latter was affected only in a secondary manner."^b In the other case there was incessant inclination to void urine, with excruciating pain,

^a Lectures on the Diseases of the Urinary Organs. Third edition. Lond.: 1842.

^b Ibid.

referred to the region of the pubes and neck of the bladder, "which occurred as soon as the urine was expelled, and then subsided. There was also severe pain extending along the whole canal of the urethra, but this symptom was not especially connected with the expulsion of the urine."^a The kidneys were found, after death, extensively diseased, the urethra and the urinary bladder not presenting any morbid appearance. The tunics of the bladder "were thinner than might have been expected, considering that the patient had for some time suffered from a frequent inclination to make water." "The prostate gland was not enlarged, but it might be supposed that its texture was a little firmer than usual."^b

Although I had not an opportunity of verifying, by *post mortem* examination, the diagnosis in the following case, I am of opinion that it was of a similar nature to the cases described by Sir Benjamin Brodie, in which renal disease caused symptoms referable to the urethra and bladder, these portions of the urinary apparatus being nearly altogether free from structural alteration:—

A young man, seventeen years of age, was admitted to the Adelaide Hospital, suffering from frequent desire to pass, and occasional difficulty in passing, water, voiding but little at a time. There was pain in the neck of the bladder, and a burning sensation along the urethra. No evidence of prostatic enlargement could be discovered. The urine was acid, free from mucus, of low specific gravity, and highly albuminous. Allowed to settle in a conical glass, it deposited a substance, which, to the unassisted eye, looked like mucus, but which was found, under the microscope, to be composed almost altogether of oily casts of the uriniferous tubes, many granule cells, and a good deal of free oil globules (Fig. 31). The latter could hardly have been derived from a sound, as one had not been used with him for several days previous to the examination of the urine. He had been told before we saw him that a stone was probably in the bladder, and that he should have himself sounded. Consequently I explored the bladder on several occasions, but without detecting a foreign body in it. After a short stay in the hospital he returned home, where he succumbed to the renal disease.

Exceptional cases like this one show us the necessity of a careful examination of urine passed by persons suffering from symptoms referable to the bladder, lest we overlook the true source of the symptoms in the kidney.

^a Ibid.

^b Ibid.

Caries of the Posterior Extremities of the Metatarsal Bones and of about the Anterior Halves of the Cuboid and Cuneiform Bones of the Right Foot—Amputation—Carbolic Acid Cream—The Tubular Presse-artère.

After the notes of the preceding cases had been prepared for press, the subject of the following case was submitted to amputation. The tubular *presse-artère* having been used in it also, for the immediate compression of the large arteries, as well as a carbolic acid cream, which I have found a very useful and elegant dressing, the reader may not consider it unworthy of this Journal:—

Mrs. F. W. placed herself under my care to be treated for disease of some of the bones of the right foot. There was but little swelling of the soft parts, and but one small opening which was situated over the posterior end of the fifth metatarsal bone, and around which the integument for a little distance was somewhat injected. In fact, we had in the case what I am sure has been frequently observed by surgeons acquainted with the pathology of diseases of bone—namely, very trifling alteration of the bone coverings with extensive disease of the underlying bones. Crystallized carbolic acid, iodine,^a potassa c. calce, were applied on several occasions to the carious bones, each of those preparations having been given many separate trials. Alterative medicines were administered internally, and every attention was given to her diet. The osseous disease notwithstanding progressed, of which Mrs. F. W., becoming sensible, requested that I would relieve her by some surgical operation. Being myself convinced as to the futility of further delay, I acceded to her wish for the chance afforded by an operation, and with the assistance of Drs. Walsh and Barton, the patient being under the anesthetic influence of chloroform, I made a dorsal tentative incision for the removal of two toes with their metatarsal bones. It was found, as we suspected, that more of the bones were carious than was indicated before we began the operation, consequently Chopart's amputation was commenced, and was completed in a few moments, the head of the astragalus having been removed with a saw. One tubular *presse-artère* was applied to the anterior tibial artery, and a second upon a large artery in the plantar flap. Two or three small vessels were secured with fine silk ligatures. The cut surfaces were then washed with carbolic acid glycerine, and water (ʒiv. to ʒx.) until they became

^a Nélaton.

opalescent, after which they were secured together with three twisted sutures, the face of the stump being covered with a combination which I have named carbolic acid cream,^a and for the proportions necessary for the formation of which I am indebted to Mr. Digges, of Messrs. Hamilton, Long, and Co., in this city (Dublin).

When the patient was placed in bed she was given a full opiate, and ordered to have four ounces of wine in the day, with plenty of nutriment.

I need not record the reports of the case for the ensuing twenty-five days, as during that time not more than about a table-spoonful of pus was formed, and cicatrization progressed so rapidly that it appeared to be nearly completed. However, on the twenty-sixth day Mrs. W. changed her residence—against my wish—for a smaller one in a confined part of the city. She had not been there more than a couple of days when erysipelatous inflammation attacked the stump, and an abscess formed, which I opened. Matters are again, however, proceeding favourably, and there is every prospect of a rapid completion of cicatrization.^b

ART. XIII.

1. ON THE CURE OF PHYMOSIS BY "SUDDEN DILATATION."

2. OBSERVATIONS ON SOME POINTS CONCERNING THE REDUCTION OF DISLOCATIONS.

By FRANCIS R. CRUISE, M.D., &c.; one of the Surgeons to the Mater Misericordiæ Hospital.

I.

I WISH briefly to advocate the cure of Phymosis by "Sudden Dilatation." This treatment appears to me so efficient, safe, and ready, that I consider it quite a boon, especially as phymosis is a condition at once common and objectionable. The success of this

^a Carbolic acid (crystallized), three drachms; oil of theobroma, four drachms; castor oil, three ounces; mix with heat, and when cold, add, with trituration castor-oil, half an ounce. This compound has the appearance and consistence of cold cream, and retains its colour for a long time. Canada balsam and creasote I have tried in it, but it has not then so elegant an appearance. The balsam, when old, renders the cream more viscid than it does when recent, and more likely therefore to assist in prolonging the contact of the acid with the soft parts. Although creasote and carbolic are so closely allied to each other, I use a few drops of the former frequently with the acid, having observed that fetor is thereby more efficaciously subdued.

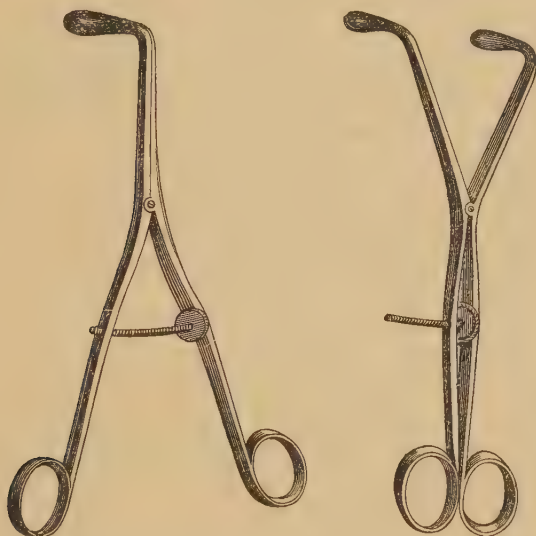
^b The engravings for this paper were executed by the Messrs. William and Alfred Oldham (Dublin), whose handwork is so well known.

method depends on the circumstance that the contraction is usually situated *in the mucous membrane of the prepuce, just at its junction with the skin*. Accordingly when we open this contracted point forcibly, the mucous membrane *tears up* while the skin expands with the utmost facility.

The operation may be performed with a common dressing forceps, but I prefer one specially designed for the purpose. The woodcuts exhibit an instrument made to my directions by Messrs. O'Neil and Thompson, of Henry-street. Fig. 1 shows the

Fig. 1.

Fig. 2.



instrument closed, Fig. 2 represents it open. No lengthy description is needed; to enable the operator to regulate the extent of dilatation there is a little arc in the handles cut with a screw thread, and carrying a movable nut which can be adjusted to the requirements of the case.

Before the operation it is desirable to calculate the amount of dilatation required, and to adjust the dilator accordingly. I do so on this plan:—I cast a loop of thread loosely round the penis at its thickest point, namely, at the corona glandis; now, using the loop as a measure, I arrange the nut upon the arc, so that when the handles of the forceps are closed its jaws separate enough to make this loop tense.

Now I proceed to operate as follows:—I commence by seeking

out the preputial orifice, exactly where the skin and mucous membrane unite; into it I insert the closed jaws of the forceps, taking care not to pass it into the urethra; now I close the handles suddenly and firmly. The mucous membrane tears up in the line of the axis of the penis, and immediately the foreskin may be retracted completely.

The pain endured is sharp but transient, and I have never seen bleeding or other trouble follow. The only dressing needed is a strip of lint, moistened with water or other lotion, which should be wrapped round the part so as to retain the foreskin retracted and cover the wound. After a few days nothing is required, and in all suitable cases, operated on with due care, the result has been perfect.

It is just a year since I adopted this method of treating phymosis, and I have the experience of about a dozen cases. I operated on some of these in the Mater Misericordiæ Hospital, and on others in private practice. In the latter instances I experienced special comfort, no chloroform being needed, and the operation being performed in my study. The method has been tested by my friends Dr. Robert Macdonnell, Dr. Stokes (junior), Dr. Tyrrell, and Dr. Henry Curran, and has given entire satisfaction. Our joint experience has led to certain conclusions which I will now state.

1st. This method of treatment is best suited to cases of simple uncomplicated phymosis, and is not so successful where there is induration or matting of the parts from inflammation.

2nd. It is requisite to dilate *fully*, otherwise the result will be only partially successful. I learned this by the result of some of my earlier cases.

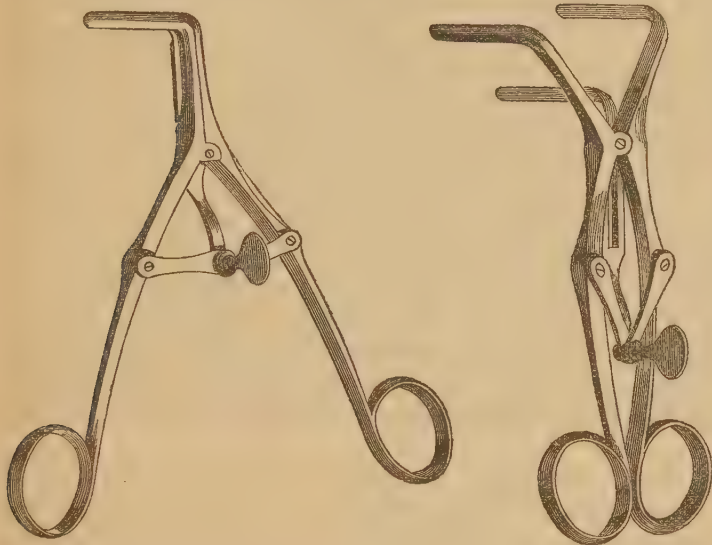
3rd. It is advisable after the operation to keep the foreskin retracted for twenty-four or forty-eight hours, as neglect of this precaution may lead to failure.

It is not difficult to understand the reason. When the prepuce is forcibly dilated the mucous membrane tears in the direction of the axis of the penis, and if it heals up in this posture very little is gained. On the other hand, when the foreskin is retracted the rent becomes transverse, and if the parts are so retained until some adhesion takes place between the skin and mucous membrane, then subsequent contraction, affecting only the length of the line of rent, is inconsiderable. I have satisfied myself of this mechanism of the operation by experiments on the dead body, Dr. Robert St. John Mayne having kindly sought out for me a subject presenting the condition of phymosis.

In conclusion I beg to say that the idea of sudden dilatation as a cure of phymosis is not original with me. I saw the late Dr. Hutton use a dressing forceps for this purpose fifteen years ago, and the French Surgeons have lately resorted to it.

Fig. 3.

Fig. 4.



Figs. 3 and 4 exhibit, closed and open, a three-bladed dilator which I bought in Paris a year ago. I prefer the instrument represented in Figs. 1 and 2, both for its greater simplicity, and because the expansion can be regulated to a nicety, according to the requirements of each case.

II.

In the year 1861, I published in the *Dublin Hospital Gazette*, some observations on the reduction of dislocations, together with the description of a new extending apparatus. In that paper I entered at some length into the description of various appliances which have been used for the purpose, estimating, to the best of my ability, the value of each. Subsequent experience has confirmed me in the views then put forward, and which I will now briefly recapitulate.

Making due allowance for the large number of cases in which reduction is facilitated by chloroform and "manipulation," it remains beyond question, that a certain proportion cannot be

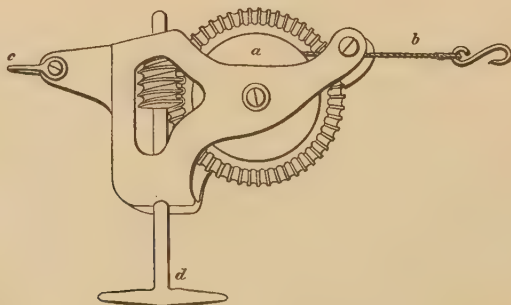
managed without forcible extension. The question then arises: How can forcible extension best be made? I think I have demonstrated in the paper referred to that it can best be accomplished by means of an endless screw windlass. The tractive force thus obtained possesses the requisite qualities. It is *powerful*, so as to overcome the resistance of opposing muscles; it is *gradual*, and thus wearies out these muscles rather than violently counteracts them; it is *easy of application*, does not embarrass or fatigue the operator, and is *constant and unvarying*, except at his will.

The instrument which I described and illustrated in my paper possessed all the desired qualifications, and gave the utmost satisfaction in operation; nevertheless, it was open to a serious practical objection, namely, being made in wrought metal, it was very expensive. This circumstance debarred it from general use. I have since spent some time endeavouring to mend this fault, and I trust I have succeeded. The windlass which I now wish to introduce to the notice of the profession is as efficient and manageable as the original one; but, being manufactured from carefully made models in malleable cast-iron, it can be purchased at a small price.

I am much indebted to Mr. James Kennan, of the firm of Kennan and Sons, Fishamble-street, Dublin, for the pains he has taken in carrying out my designs, and for the valuable practical hints he has given me.

The instrument is now to be had from Messrs. Fannin and Co., 41, Grafton-street, in this City. Fig. 5 will render its construction intelligible.

Fig. 5.



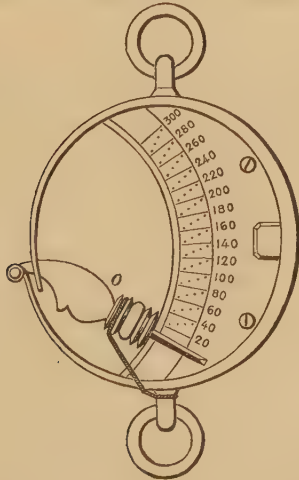
It consists of the drum (a) upon which a rope (b) is gradually wound up. The hook at the free extremity of this rope is attached

to the gear wherewith the limb is grasped, and the windlass is secured to some fixed point by the loop (*c*). The drum is rotated by the revolution of an endless screw, acting upon cogs cut on its edge, the screw being moved by the handle (*d*). According as the rope is shortened so is extension made, and with such power that with one hand a force of two hundred weight can easily be applied. To facilitate adjustment of the length of the rope to the requirements of each case, the endless screw can be shifted from contact with the edge of the drum, and the latter, being then free, can be wound or unwound without delay. The moment force is required the screw may be shifted back to place. A little study of the woodcut will render this obvious.

I have frequently used this windlass myself at the Mater Misericordiæ Hospital, and am satisfied of its efficiency. Lately, it has been tested by Dr. Robert Macdonnell, at Steevens' Hospital, and by Dr. Robert P. White and Dr. Corley, at Jervis-street Hospital, and has given entire satisfaction.

In all instances, I use the dynamometer, Fig. 6, which I recommended in 1861. Independent of the security it affords against the

Fig. 6.



application of excessive force, it encourages the operator *slowly to tire out* the opposing muscles with the *minimum of traction*. I was not aware, in 1861, of the extent to which this economy of force may be carried out, but since then I have thoroughly realized it. I

think I may safely say, that, by allowing proper time for the muscles to yield, any moderately recent luxation, uncomplicated by organized adhesions, may be reduced with one-half the force formerly used. Some years ago, I often applied over 150lbs. pressure; but, latterly, I rarely exceed 60lbs. I need not observe how much risk of damage to the tissues is thus avoided.

I will quote two cases in illustration:—

CASE I.—I happened to be in the Mater Misericordiæ Hospital in the middle of the day, January 8th, 1867, when a very powerfully built young man came in with a recent subcoracoid luxation of the right shoulder. The patient was too muscular to justify expectation of reduction by simple manual effort; therefore I placed him on his back, on a mattress laid on the floor of the hospital theatre, and made extension with the windlass in the direction of the spine of the scapula. When the dynamometer indicated 60lbs., I delayed, sustaining that pressure for ten minutes. At the end of this time, finding that the head of the bone had cleared the edge of the glenoid cavity, I suddenly released the extension, and placing my heel in the axilla, carried the arm across the chest. The head of the bone at once slipped into place, with an audible snap.

CASE II.—Patrick Flanagan, aged thirty-eight, entered the Mater Misericordiæ Hospital under my care, February 27th, 1867, with subcoracoid luxation of the right humerus. The accident had occurred the previous evening from a fall on the shoulder. The man had endured great pain all night, and was still in much suffering. Placing him similarly to the last patient, I applied extension in like fashion. After twenty minutes, the dynamometer indicating only 30lbs., the head of the bone slipped into place.

Before concluding, I may just mention a few contrivances which I have found serviceable, under trying circumstances, in the reduction of luxations.

I may observe, in the first place, that in the majority of instances, the recumbent position is the best for the patient, and I prefer laying him on a mattress on the floor. In certain cases of dislocations of the elbow it is better to place him sitting on a chair.

Next, it is often difficult, unless in an hospital theatre, to find available fixed points to which extending and counter-extending apparatus may be attached. It is rare, however, not to find substantial wood-work, and a screw-ring which can be easily driven

into it is invaluable. Fig. 7 represents one which has served me well. The screw is so sharp that it will penetrate any wood-work, and once inserted, it resists any amount of traction.

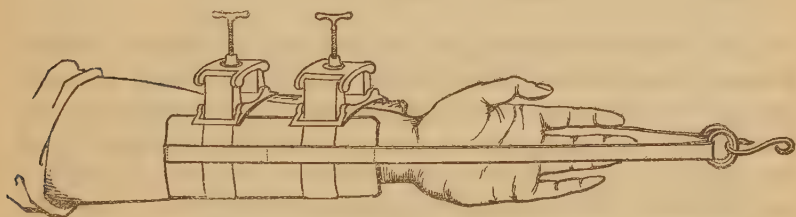
Fig. 7.



For a counter extending band, I think a rolled sheet equal to any, and always at hand.

The mode of grasping the limb is a very important point. For myself I prefer the worsted skein, put on in single or double clove-hitch, the part being protected by a wrapping of moist chamois leather. In some cases I have found a bracelet, such as that represented in Fig. 8, very satisfactory. A glance will explain its

Fig. 8.

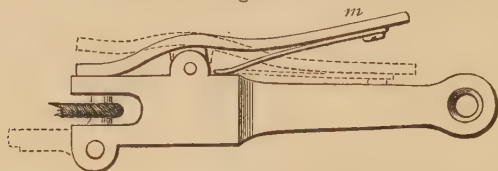


construction. It consists of two separate pads, which nearly surround the limb; straps are attached to them, in such a manner as to allow strong bands to encircle the pads and limb. These bands in place of being merely buckled, are controlled by a pair of screw tourniquets, which device enables the operator, even while the extending force is applied, to tighten or relax as may be advisable.

Should it prove requisite to release the extension instantaneously, the instrument represented by Fig. 9, which I devised ten years ago, may be relied upon. The wood-cut shows it closed, and the dotted lines illustrate the mode in which it opens, and liberates the engaged cord or ring, the moment the trigger (*m*) is pressed down.

The history of this instrument is fully detailed in my original paper, as well as its advantages over L'Estrange's, and other contrivances.

Fig. 9.



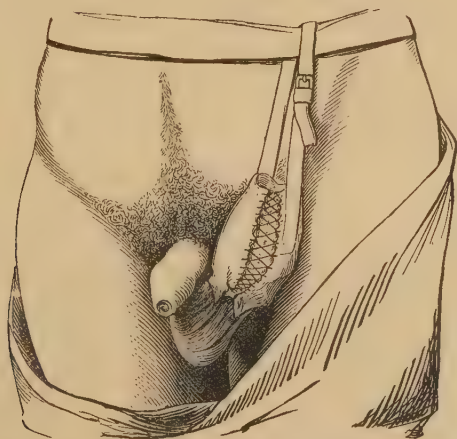
In conclusion, I beg indulgence for occupying so much space with these observations relative to the reduction of luxations,—pleading as excuse, my desire to impress my belief, that the instruments recommended, and the method of extension indicated, facilitate the operation, economize force, and reduce to a minimum the liability to injury.

ART. XIV.—*On the Treatment and Cure of Varicocele by Suspension of the Testis.* By MR. MORGAN, F.R.C.S.I., Surgeon to Mercer's and the Westmoreland Lock Hospital; Professor of Descriptive and Surgical Anatomy, R.C.S.I., &c.

THE treatment of varicocele and the many inconveniences accompanying it has always received much attention from the surgeon. Owing to the nature of the configuration of the parts concerned, the difficulty of making pressure, or of influencing the condition of the vessels, perfect and manageable palliative treatment is difficult of application. The contraction of the scrotum by the use of the flexible ring, or by the method of removing a portion of it, has not been found as successful as might have been anticipated, while the application of pressure by means of a truss is often extremely inconvenient and unbearable, though occasionally, after many months' use, eventually producing a cure. No doubt the chief cause of non-success in these cases was allowing the dependent condition of the testis to continue, and the anatomical arrangement of the vessels to remain unchanged. With a view to effect not only great palliation of the symptoms, but also to obtain a gradual and permanent cure, I have found a plan of suspending the testis the most efficacious and endurable. The vertical direction of the current of blood, specially on the left side, proves the great difficulty to be contended with, and the support of a contracted scrotum, or

of a suspensary bandage, will, of course, not influence this, while the pressure of a truss, though retarding the blood current, does not give any immediate support to the testis itself, and the wearing of it is often extremely irksome and painful.

The plan of suspension I propose in the first place supports equally the testis and the distended veins, acting as an elastic stocking does to the leg, and then allows an easy suspension of the organ. It brings the veins into an inverted position, and directly relieves them from over-distension, and the blood current is more materially and effectually regulated by doubling the vessels as it were round the inguinal ring. A reference to the illustration will explain this. The testis is shown in the "suspender," which consists of a piece of web about $3\frac{1}{2}$ inches wide at one end, $4\frac{1}{2}$ inches long, 4 inches wide at the other, and cut, gradually tapering to the narrower end. A piece of thick lead wire is stitched in the rim of the smaller end, and the sides are furnished with neat hooks, a lace, and a good tongue of chamois leather, two tapes being sewn along the entire length of the web, which are afterwards attached to the suspending belt. The application is easily made by the patient in the morning before rising, and when the parts are relaxed, laying the affected organ, while in the dependent position, in the "suspender," and lacing up the hooks with a moderate degree of tightness, then raising it up and attaching the tapes to the suspending belt previous to rising from bed. The woodcut, taken from a photograph of a patient who had been a great sufferer for years, shows the general arrangement.



The size of the "suspender" must, of course, vary more or less,

but the measurements named will suit an ordinary case; the lead wire encircling the lower end, gives a foundation to the general means of support, and keeps the testis within the suspending bag, the patient can mould it more or less to his convenience. Of course, as in every appliance of the kind, a certain amount of discretion must be used as to wearing of the suspender for the first few days; it should not be kept on constantly; the parts should be sponged night and morning with cold water or a cold lotion, used so as to fortify the skin, as any chafing must be avoided—in all cases the suspender is best omitted at night. So great is the convenience afforded that the gentleman from whose case the illustration is taken is now shooting in Scotland, able to enjoy himself and go through a day's hard walking without inconvenience, the suspension of the testis affording him such relief.

An hospital case treated during the summer also shows the great adaptability of this method—the patient being a railway porter, and in the habit of carrying heavy weights, yet he is able, by aid of the suspender, to pursue his business without inconvenience. In another instance of a groom, in the habit of riding, a similar relief was speedily obtained.

In cases of specific orchitis I have also found the suspender give immediate relief, the testis being first wrapped round with lint steeped in tinct. opii—the bag is gently and neatly applied, and then raised by means of the straps, after one hour or so it may be a little more raised, till finally it is vertical. The relief from pain in most cases is immediate, and the compression is equable, the weight of the testis is taken off by the “suspending” sac, which should always be made of web or some open-worked material to allow of coolness and prevent any unnecessary irritation or chafing of the skin.

ART. XV.—*Rare Form of Luxation of Acromial End of Clavicle, Upwards and Backwards.* By PHILIP BEVAN, M.D., T.C.D., M.R.I.A.; Fellow and Professor of Practical Anatomy, Royal College of Surgeons; late Surgeon to Mercer's Hospital.

JOHN M'DONNELL, aged fifty-nine, he looks older, and is much emaciated, a coal porter, admitted into Mercer's Hospital on 8th of May, having received severe injuries from a fall into the hold of a vessel on the quay. He states that he has had a stiff right elbow

joint for many years, and has constantly suffered from cough and asthma.

He is now suffering from extreme dyspnea, which, according to his own account, is frequently even worse than at present, whenever he gets a fresh cold. His face is livid, and extremities cold; pulse 120, small and weak; he complains chiefly of pain in the right shoulder, on examining which, the following symptoms were observed:—The point of the right shoulder was one inch nearer to the mesial line than the opposite; the acromial end of the clavicle was thrown obliquely upwards and *backwards*, two fingers breadth above the superior edge of the spine of the scapula, where it rested on the super-spinatus muscle, and there formed a remarkable projection, best seen from behind. The right shoulder seems a little higher than the opposite one; the usual depression above the clavicle is absent; the anterior edge of trapezius was tense, and formed a prominent ridge from the occiput to the shoulder; the depression below the clavicle was also absent, or rather filled up, partly from the dragging on the deltoid and pectoral muscles, and partly from the entire shoulder being thrown forwards and inwards. The spine and acromial process of scapula can be distinctly felt through their entire extent, slightly depressed below the level of the opposite side, but otherwise unaltered. The clavicle, being raised two fingers' breadth above the spine, does not interfere with its outline. The clavicle moves most freely on the slightest motion being communicated to the arm, and the entire shoulder is closer to the ribs than natural. The following measurements were taken with great care, the arms being allowed to hang freely by the side:—

Measured from Before.—From the sternal end of the clavicle to the point of the acromial, $7\frac{1}{2}$ inches on sound side, $6\frac{1}{2}$ on injured side.

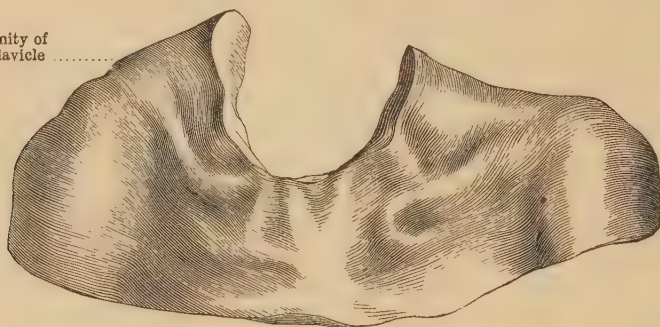
Measured from Behind.—From superior posterior angle of scapula to posterior end of clavicle, $3\frac{1}{4}$ inches on sound side, $2\frac{3}{4}$ on injured side.

I attempted to measure accurately the distance from the extremity of the clavicle to the spinous process of dorsal vertebræ, but found it to vary so much on the slightest alteration in the position of the arm as to be of little value.

His right eye and side of the face were considerably contused, as was also his right thigh and right side of the chest, and the skin over the right clavicle, proving distinctly that he must have fallen

forward. He can give little account of the accident, but that he fell against the keelson of the ship.

Extremity of
the clavicle



Three forms of dislocation of the acromial end of the clavicle are described by authors:—1st, Upward, or upwards and outwards, the most frequent, the only one seen by Sir A. Cooper; this may be either partial (a very common accident) or complete. 2nd, Under the acromion. 3rd, Under the coracoid, a very doubtful accident. I would add a 4th, upwards and backwards, of which this is a specimen. I do not believe that this can be *correctly* classified with any of the others. No case of a similar nature is described in any English or American work, except one in Dr. Hamilton's most valuable work on fractures and dislocations. He says, that a Mr. B. had his clavicle thrown upwards and backwards, but in that case there was a partial dislocation of the sternal end of the clavicle at the same time. However, Malgaigne describes four cases, but he considers it a modification of the luxation upwards on the acromion process. It appears to me to differ from the latter in several essential points:—

1st. In it the clavicle is thrown upwards and backwards, not merely outwards above the acromion.

2nd. The extremity of the clavicle does not rest on the acromion, but is raised considerably above the spine of the scapula.

3rd. The clavicle is thrown backwards, and its extremity is, therefore, best seen behind and not from without.

4th. The force to produce it must be applied in a different direction. In order to produce the luxation outwards, the force must be applied to the shoulder, *i.e.*, laterally, or, in some cases, "rather on the back than the extremity of the shoulder;" in fact, the force must be applied to the acromion or shoulder, whereas, to cause the

luxation backwards, the force must be applied to the clavicle itself, and on its anterior aspect.

5th. The manner of diagnosing the luxation outwards could never apply to this case, as Sir A. Cooper says:—

“The easiest mode of detecting the accident is to place the finger on the spine of the scapula, and to trace this portion of bone forwards to the acromion, in which it ends; the finger is stopped by the projection of the clavicle, and so soon as the shoulder is drawn back the point of the clavicle sinks into its place, and it reappears when the shoulders are let go.” Now, obviously this could not apply to the present form of luxation, as the spine of the scapula was quite free throughout, the point of clavicle being raised above it; therefore, we could trace the spine of the scapula without ever meeting the clavicle. The effects of the two forms of luxation will, I believe, be very different; in the former a good use of the extremity is always obtained, even when the bone is not restored to its position, as the end of the clavicle becomes firmly connected to the spine of the scapula; but in the latter case no such result could be expected, as the clavicle does not remain in contact with bone, and simply rests on the super-spinata fascia under the trapezius.

This accident must always be of rare occurrence, as the outer third of the clavicle is so much protected by the projection of the shoulder, that the latter is sure to meet the force and to cause fracture of the clavicle, unless, as in the present instance, the clavicle comes directly on some projecting body in such a way as not to strike the acromion at the same time.

Points of Diagnosis

Between luxation outwards

1st. Clavicle directly outwards.

2nd. Clavicle rests on acromion.

3rd. Extremity of clavicle seen from before and without.

4th. Cause—A force applied to acromion or shoulder from without.

5th. Results—A useful member.

And Luxation upwards and backwards.

Clavicle upwards and backwards.

Clavicle placed above spine of scapula.

Extremity of clavicle seen from behind.

Cause—A force applied to clavicle from before.

Results—Complete loss of power.

In the present case the accident seems to me to be easily explained, the man, having a stiff and unused elbow-joint, did not put forward the arm to save himself, and came with his full force on the entire of his right side, as is proved by the many contusions observable on that side, while his clavicle came directly on the

kelstron of the ship. Had he put out his hand, probably, the clavicle would have been broken, and had the point of the acromion or shoulder come against the kelstron, the luxation outwards would have resulted; but, as the clavicle came directly against the projection, it was thrown backwards, and then the action of the muscles carried the shoulder inwards.

I attempted to reduce the luxation, and could accomplish it, by placing my knee between his scapulæ and drawing the shoulders back with my entire strength, but to keep them in that position, even for a few minutes, was completely impossible, from the difficulty of breathing under which he had previously laboured. However, I very much doubt whether even a person whose respiration was healthy could endure the amount of force necessary to resist the action of the serratus magnus, and the two pectoral muscles, &c., by which the shoulder was carried forwards and inwards; besides, the peculiar position, the amount of displacement is remarkable in this case; in other luxations of this joint, the displacement is rarely more than half an inch; in one case only, Hamilton found it three quarters of an inch over-riding the acromion; but in this the displacement must have been carried to the extent of one inch at least.

An extremely doubtful point of some interest is the state of the coraco-clavicular ligaments (conoid and trapezoid), in most complete luxations, no doubt they must be torn; but on making experiments I find that the clavicle can be placed nearly in the position of this luxation, merely by a twisting of those ligaments.

N.B.—I make no apology for continuing the old method of nomenclature, although it is certainly more philosophical to consider all these cases as dislocations of the scapula, as has been proposed by Skey, Maclise, &c.; but the alteration of names lead to such confusion, that I believe more inconvenience arises from the change than would compensate for the greater correctness of the new terms.

ART. XVI.—*The Treatment of Club-foot by Direct Extension.* By JOLLIFFE TUFNELL, Esq., F.R.C.S.I., M.R.I.A.; Surgeon to the City of Dublin Hospital; Examiner in Surgery, Royal College of Surgeons in Ireland, &c., &c.

A WRITER upon orthopedic surgery^a remarks that “the practitioner, in the exercise of this art, should be, as far as possible, independent of extrinsic aid.” The means which I am about to advocate duly fulfil this end.

^a Dr. Little.

In the treatment of talipes the main point to be attended to is the drawing down and fixing of the heel.

The shoes of Scarpa, the foot-splints of Stromeier, and all the complicated apparatuses which from time to time have been introduced, as possessing peculiar advantages, have each had, as the object in view, the acquirement of a point *d'appui* or fixed centre from which the removal of the deformity might be commenced, and the restitution of the foot to its normal position begun.

It matters not as to whether the tendons implicated in each special instance be or be not divided (so far as instrumental aid is concerned), for the ultimate object to be attained is the same in either case, viz.: the removal of the distortion; and the simpler the method by which this can be effected the better.

I have in the course of practice used many of the various instruments made and sold for this purpose, and with each and all I have found the same objection to exist, namely: that the heel, especially in a very young patient, soon becomes retracted, and the foot to a great degree misplaced; and that instead of occupying the position into which it has been carefully and apparently effectually placed a few hours before, it is, when examined, found to be shifted and changed, the toes only continuing to be confined to the foot-board of the splint.

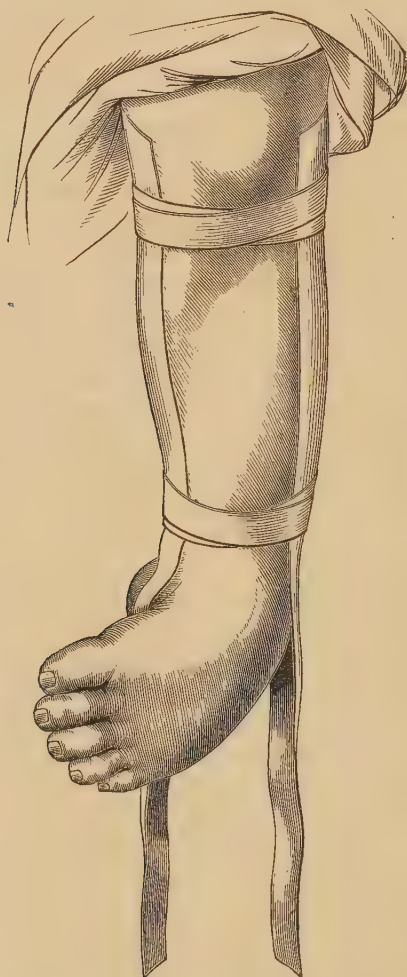
This practical defect led me to employ for the drawing down and fixing of the heel the simple mode of extension by adhesive plaster, first (I believe) suggested by Dr. Crosby, of the United States, and since generally adopted in cases of fracture of the thigh.

Its superiority over any other mode of treatment that I have seen employed in club-foot is such as to induce me to bring it before the notice of the readers of this Journal, believing that it may be of use to many, especially in provincial practice, and establish that the employment of elaborate and complicated instruments may in nearly every instance be avoided.

I am myself an advocate for tenotomy in talipes, in its various forms, and for the full division of all the tendons engaged; but whether tenotomy be resorted to or not the after-treatment in restoring the foot by mechanical means remains the same; and this is the point to which I wish to call attention, and the extreme efficiency with which the majority of cases can be treated by means of a simple iron splint, aided by Crosby's sticking plaster straps.

There may be some surgeons, perhaps, who have not yet even employed them, or seen them employed, for extension in fracture of

the thigh; and therefore in the accompanying sketch I have endeavoured to pourtray the manner in which the adhesive material should be applied to the limb.

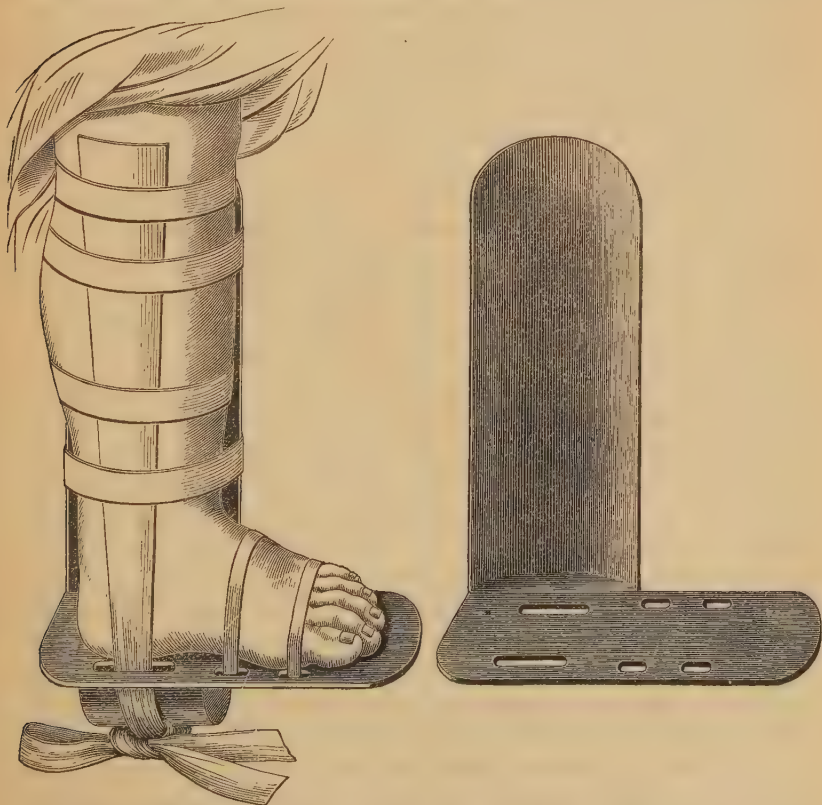


Two broad straps of adhesive plaster must be fixed one on either side from the knee to the malleoli, and hanging free for twelve inches below, these straps being confined in their places and prevented from slipping when drawn upon by two or three circular straps encompassing the leg, but at the same time avoiding all constriction of the limb.

Soap plaster is preferable to the ordinary sticking, or resin, plaster in this respect, that it is less irritating to the skin, and less

likely to excoriate—a point of the utmost importance, especially in the newly-born child; and the treatment here recommended can hardly be begun too soon.

The annexed drawing shows the sticking plaster as applied to the patient's limb, with the heel drawn down thereby, and firmly fixed to the foot-piece of the splint by merely knotting the ends of the plaster after being brought through the posterior slits over an ordinary bottle-cork, flattened upon one side, the anterior portion of the foot being spread out and confined in position, as the progress of the case will permit, due care being taken in every instance not to employ any great degree of force, but simply, as it were, to coax down the distorted foot into its natural shape and position, as for progression in after life.



The remaining woodcut shows the common iron splint with its requisite slits—the posterior for the heel, the middle and anterior for the straps that pass over the tarsal and metatarsal bones.

ART. XVII.—*Diffuse Hypertrophy of both Mammæ—Excision of one Organ—Favourable Result.* By S. M. MACSWINEY, M.D., Physician to Jervis-street Hospital.

DISEASES of the female breast are, admittedly, amongst the most important which come under the cognizance of the physician or surgeon. They are still, I believe, usually classed into (a) those which are *malignant*, and (b) those which are *simple*, i.e., those which are looked upon as not being ordinarily malignant. I say “ordinarily,” because it is now well established that tumours, apparently belonging to the latter class, will sometimes, owing to an unexplained impetus given to the action going on in them, or for some other cause, assume all the more serious characters of the former. But I think that, guided by experience, we may make a third class out of those affections of the breast which, although absolutely *simple* in their nature, throughout all their course, are capable, nevertheless, of destroying life by the extreme exhaustion of the system which they induce as effectually as if they had been intensely *malignant* in structure.

The case presently to be related by me affords a typical example of this proposed class. In this case a serious and rare diseased condition of the mamma, belonging to the non-malignant morbid states of that organ, was present, and was only prevented proving fatal by a very extreme procedure. The disease was the “true” hypertrophy of Birkett, the “large and pendulous breast” of Sir A. Cooper, the “glandular” hypertrophy of Velpeau, a state in which the glandular and fibro-cellular tissues of the mamma are developed in an unusual degree, often attaining to an enormous size. In this affection, which may be said to be a rare condition of the organ, there is no tumour, or morbid growth; the mammary tissue itself appears to be the part exclusively engaged. The gland, or glands, for both are frequently engaged, becomes, generally without known cause, greatly, often monstrously, enlarged. The increase in size is, at first at least, usually unaccompanied by severe pain, or remarkable heat, or any serious functional disturbance. The integuments do not display any constant or well-marked change of colour. The lobules can be felt hard and enlarged, the increase in size being generally uniform, although in rare instances it is confined to parts only of the mammary structure. Tense, firm, and rounded at first, after a time, as the disease advances, the organ becomes pendulous.

This disease occurs almost invariably in the unmarried, and at the age of puberty. In some of the recorded cases there was derangement of the menstrual health, usually suppression. In others, again, this important function was entirely uninterfered with before or during the course of the malady.

I may now be permitted to say a few words respecting the treatment of this affection which has found most favour with physicians

Iodine and its preparations, given internally, and applied in the form of lotion or unguent externally, are indicated usually, and have often been tried. *Cod-liver oil* and *mercurials* have been had recourse to, and, in a word, all such other remedies as tend to improve the general health, or to restore any important function which may be deranged.

The use of *compression*, judiciously made, and the application of a *suspensory bandage*, afford, in many instances, excellent aids in the cure or alleviation of this disease.

Sir A. Cooper was of opinion that the principal cause of hypertrophy of the mamma was celibacy; whilst M. Velpeau, recognizing the intimate relation and sympathy which exist between the uterus and mamma, held that marriage and pregnancy afforded the means most likely to ensure a restoration of the organs to their normal size. And Dr. Fingerhuth actually cured two cases of the disease by exciting lactation in the patients by the application of cupping glasses to the nipples for several days.

The introduction of a seton into the affected gland has been recommended, and was tried with complete success in a case by Dr. Thompson. Removal of the breast by amputation has become necessary in some extreme cases where other remedies had failed, or where the sufferer was in danger of death from exhaustion. This procedure has been followed by the best results, the removal of one breast, where both were enlarged, being sometimes followed by the reduction in size of the other. Thus, Mr. Hey, in a case of enlargement of both breasts, removed one which weighed eleven pounds four ounces. The other organ diminished in size, and the girl recovered. M. Marjolin (*Gazette des Hôpitaux*, No. 131, 1868) reports the case of a girl fifteen and a-half years old who had this affection in both breasts. Treatment produced no effect; the right breast continued to increase in size; the skin gave way; a soft, painful fungus began to form, and Marjolin had to remove the organ. The patient made an excellent cure. I am not aware that excision of the breast for hypertrophy was ever

performed in Ireland until Mr. Stapleton, at my request, removed the one in the case which I now beg leave to relate.

M. M'G., aged twenty, unmarried, consulted me in April, 1869, for the inconvenience and weight caused by great enlargement of both her breasts. She gave me the following

History.—She has been rather delicate, although never seriously ill, as long as she can remember. One year ago she noticed a “kernel” in her right breast. Shortly afterwards she became aware that both her breasts had become rather suddenly considerably increased in size. They had been all her life very imperfectly developed, and were noticeably under the average size up to this time, when they assumed the condition of rapid growth. Their bulk augmented until their weight and size caused her much inconvenience. She never felt any severe pain in them; nothing more distressing than occasional “stings” darting through them, accompanied by a feeling of general uneasiness in the entire mammary region. Her health soon became seriously impaired; her appetite failed her; she lost weight and strength, and she slept badly. She knew of no cause whatsoever for this affection of her breasts. Her monthly periods had been regular in their occurrence ever since their first appearance at the age of fourteen. She had never received a hurt in the part affected, nor had ever experienced any irregular irritation of the mamma, or the related organs. Two months before she came to me she consulted Mr. Edward Hamilton, and was under that able surgeon's treatment for some weeks. No important alteration in her state, however, occurred, she says, during this time; but she observed that the size of the breasts diminished after each catamenial flow, and then resumed its process of increase again, until it reached its maximum at the commencement of the next monthly period.

After consultation with my colleagues at Jervis-street Hospital, I submitted her to a course of remedies intended to promote the absorption of the hypertrophied tissue. She took iodine in different preparations internally; and the breasts were gently rubbed with a variety of liniments. This plan was persevered with for some weeks, but no improvement followed.

I now became impressed with a conviction that mere therapeutic measures would not produce any substantial and permanent reduction in the size of the breasts, and, influenced by the results of experience, as recorded by Birkett and others, I felt certain that the only available remedy was excision. And as in some of the

reported cases where both breasts were engaged in the abnormal process, removal of one gland only had been followed by a considerable and permanent reduction in the size of the other, I was in favour of removing but one breast at first, and watching the effect for some months. This opinion I communicated to the young woman, and to her parents. She was very unwilling, however, to adopt the advice at the time, and I therefore recommended her to reside for some months in the country, and to pursue a plan of treatment as to diet and remedies, which I prescribed with the object of improving her general health.

She now passed from under my observation for some time, and among other medical men whom she saw, I believe, consulted Dr. Robert Macdonnell, who gave her his opinion that there was but one course to adopt now in her case, after the failure of constitutional treatment, namely, removal—a conclusion which corresponded, as has just been seen, with the one already arrived at by myself.

On July 16th she once more placed herself under my care, and I again held a consultation with my colleagues as to the course proper to be pursued for her relief. Having considered all the circumstances of the case, seeing that the breasts were continuing to enlarge, and that her health was becoming more impaired, and regarding the failure of remedies to reduce the size of the glands as having been fully established, it was agreed upon by us to advise her to have the right breast removed now, and should this not be followed, in some months, by a considerable diminution in the dimensions of the left, then that it also should be excised. She now willingly agreed to the adoption of this course, declaring that the weight of the organs was quite intolerable; and I asked Mr. Stapleton, whose experience in the diseases of the affected organs was very considerable, to receive her under his care with a view to the performance of the operation.

At this time the following was her state:—She was pale, and somewhat delicate looking. Her appetite was bad. Her sleep was interrupted and uneasy. She suffers from occasional attacks of distressing palpitation. The first sound of the heart is soft, normal; the second sound is loud, sharp, and shrill. No bruit is audible. The pulse is 90.* Her tongue is clean; her bowels regular; her voice is low and feeble, and she seems to suffer from exhaustion and irritation to an alarming extent; she cannot endure the weight of the breasts; she has to support them well up with a

piece of strong linen fastened round her waist, on which they rest as on a suspensory bandage.

The skin over the mammary glands is of the natural colour in the upper half, and of a well-marked brownish, or even livid hue, at the lower half. The organs are pear-shaped, and pendulous. In each the nipple is completely retracted. Abnormally large veins, full of blood, can be seen coursing over the surface of the breasts, and adjoining thoracic parietes. The organs are very distinctly nodulated, and have the peculiarly hard feel of mammary tissue in a condition of functional activity. The axillary glands are not affected.

The accompanying wood-cut, by Oldham, from a photograph taken by Mr. Chancellor, gives a correct representation of the appearance of the breasts at this time. Their dimensions were:—

RIGHT.		LEFT.	
	Inches.		Inches.
Length, ...	11½	Length, ...	10½
Circumference, . .	21	Circumference, . .	20

July 24th.—I gave her chloroform, and Mr. Stapleton removed the right breast. The operation was completed with the skill and rapidity which characterize all Mr. Stapleton's surgical performances. Very little blood was lost owing to the precaution taken by Mr. S. of having the tumour elevated for some time before the operation, so as to allow the venous blood to drain away from the repleted vessels. This procedure was first had recourse to by the late Mr. O'Ferrall when removing a large scrotal tumour, in a case reported by myself—when acting as clinical clerk to the operator—in the first number of the *Dublin Hospital Gazette*, Feb., 1845.

I put the breast in the scales immediately after the operation, and found that it weighed 6½ lbs. And we may estimate that at least half a pound of blood was drained out of it into the general system before the operation. If we add the weight of the other mammary gland, we will find that the poor girl had to carry about with her, depending from her chest, night and day, a load of nearly a stone in weight.

26th.—Feels no pain in wound, which looks healthy. She had a slight "rigor" this morning, and is now hot, feverish, and thirsty; complains of headache; her tongue is coated; her pulse 110; the skin over the sternum is red.



Dr. MacSwiney's Case of Hypertrophy of the Mammæ.



27th.—Complains of feeling very ill. The skin covering the left mamma is slightly raised up, hot and painful to the touch; feels rough when the hand is drawn over it; it is discoloured, of a brownish-red tint; her tongue is partially coated with a whitish covering, and partially fiery-red looking; her pulse beats 120 in the minute. Mr. Stapleton pronounced her to have a rather sharp attack of angeioleucitis.

In a few days, however, all the feverish symptoms completely subsided, the wound healed rapidly, union by the first intention taking place, and she soon made an excellent recovery. The removed breast has been presented by me to the Museum of the Royal College of Surgeons of Ireland.

August 19th.—She left hospital on this day, and went to the country for some weeks.

September 8th.—She called upon me on this day, when I found her state to be as follows:—She looks much more healthy than before the operation. She sleeps well; has a good appetite; menstruates regularly, and is quite free from pain and uneasiness.

On examination I find that the tissues in the right mammary region are quite healthy; a narrow cicatrix alone marks the line of the incision made in the removal of the breast. The skin on the left mamma was puckered up into numerous wrinkles. The gland was reduced considerably in size. Its dimensions now were:—

	Inches.
Circumference,	16
Length, ...	6½

Thus a gain of four inches in each of the two measurements has been already accomplished, and on this account I think that good grounds exist for expecting that the anticipation entertained by us of its returning to its normal size will be ultimately fully verified.

Should this sanguine expectation, however, not be realized, as is quite possible, and should, on the contrary, the left breast, instead of returning to, and remaining of, its natural size, resume the process of abnormal growth at present suspended in it, then, in this event, I will not hesitate to advise *its* removal also. And in the propriety of this recommendation I think I will be sustained by the authority of Velpeau, whose words I here quote:—"It is also determined by the majority of the cases pointed out in the commencement of the article, that the extirpation of such tumours can be resorted to with advantage. Nevertheless, I should not propose

the operation except in cases where the tumour is more or less free, and pendulous from a sort of root; that is to say, when the hypertrophy depends rather on the glandular tissue than on the other elements of the breast, or when the integuments are pretty loose, and sufficiently sound to allow of our preserving so much of them as may be necessary to bring together the edges of the wound.”—(“Diseases of the Breast,” p. 184, Sydenham Society’s Translation.)

ART. XVIII.—*Clinical Review of Cases under Treatment at the Westmoreland Lock Hospital, during the past Six Months.* By MR. MORGAN, F.R.C.S.I.; Surgeon to the Hospital; Professor of Surgical and Descriptive Anatomy, R.C.S.I.; and Surgeon to Mercer’s Hospital.

IN the following *resumé* of cases, I have endeavoured to put together such clinical facts as came under my observation, with the utmost attention to accuracy; and, for this purpose, I have separated into groups the various classes of patients, and the chief characteristics of their diseases. I also give the results of some carefully conducted inoculations on specially selected cases, which tend to show that (though the sore is inoculable), in the female at all events, constitutional manifestations not unusually follow, as exemplified by the fact that, out of fifty-six cases admitted as diseased for the *first time*, but four escaped constitutional infection so far.

On referring to the Tables, it will be seen that many of these suffered when very young, and in the early part of their career, showing the great extent just now of the disease. The admissions to the hospital also prove the spread of the contagion, as five-and-a-quarter more patients per day have been under treatment than for the corresponding period of last year. Without entering into the question of inoculability being a test of a non-infecting sore, or the formation of a suppurating bubo—its usual accompaniment—the statistics prove that the sores, whether inoculable or otherwise, were almost invariably followed by constitutional signs—and, therefore, were of the infecting type. This is the important question for the Government and the public, and illustrates, practically and forcibly, the great benefit such hospitals afford by treating those cases and arresting the spread of so much disease in its early and virulent stage. The fact of twenty-nine children being treated in the hospital during the past six months is also of great importance, as proving the

infection-power of the disease, and the advantages afforded by proper treatment.

The occurrence of the chronic sore is of interest. It resembles somewhat in appearance an immense chancre, with the edges extremely dense. It is often accompanied by late constitutional signs, as gummata, &c. ; such sores exist for years, and if they are capable of propagation, the mischief caused by one must be incalculable.

The need of some proper means of compelling patients to remain in hospital till thoroughly cured, is experienced every day, as they constantly leave with the disease on them uncured, from want of proper authority or means of constraint.

The effect of this state of things on the civil population cannot, of course, be so appreciable as amongst the military, where the cases are regularly tabulated. Thus, on March 26th, 1869, with a garrison here of 4,967 men, there were in hospital, from various causes, 303 patients; and of these 156, or one-half, were suffering from venereal affections, 98 from primary sores—laying thus, in many instances, the basis for future deterioration of health, long confinement to hospital, and final inability for service. These ninety-eight cases probably contracted the disease in Dublin; and it may fairly be anticipated that the after-consequences will be tedious. While on the other hand, as proof of the beneficial effect of more active means for repression of the disease being adopted, the return lately referred to in the *British Medical Journal* is most conclusive, showing that, at Aldershot, where the Contagious Diseases Act is in operation, “in a strength of about 15,000 men, the admissions from this class of disease, for the week ending March 12th, were only twenty-two; whereas, in Dublin, during the same period, among 5,000 men, the admissions from the same causes amounted to forty-nine.”

The following Tables have been put together with a view to give a general outline of the history, treatment, and result of each case, which is referred to by a number corresponding to the Hospital Book.

First Admission Cases.—Diseased for the First Time.

These patients were young women under twenty years of age very frequently—some of them only a few months from the country, and otherwise in rude health, not having as yet suffered from the deteriorating influences of their mode of life, late

hours, alcohol, irregular sustenance, and residence in some of the worst positions in the city—not a few stating positively that they were persuaded to leave home and sink directly into vice; others, that, home being unpleasant,^a they made up their minds to leave, and too often were incited to do so by a female companion already vicious.^b Although the veracity of the history may, in some instances, possibly be doubted—yet, when the accumulative evidence of a number is taken, some questions of interest present themselves for consideration, as to the produce of a poison sown, scientifically speaking, in a virgin soil, and, as a general rule, in a class of patients otherwise in good health.

I have taken particular pains in gleaning a correct antecedent history, the inoculations I have made myself, and, as far as possible, I have kept the patient under observation from the first receipt of the infection till the development of constitutional signs.

On referring to the accompanying tabulations, it will be seen that, as a rule, all sores, whether soft or hard, were followed by constitutional signs. That bubo was, as usual in the female, comparatively rare. That, whether the sore was inoculable or otherwise, constitutional signs followed in about equal proportions.

Thus of eleven cases selected as the most certainly not previously diseased, and who resisted auto-inoculation both after irritation of the sore and previously, only one failed to show constitutional signs, and in that instance the sore was of a phagedenic nature.

Again, in eleven cases, similarly selected, where, on the other hand, auto-inoculation was successfully performed on one or more occasions, not one escaped the after-effects of the disease; and a reference to the tables will show that the forms of development in both were much the same—the papular eruption predominated, accompanied by the formation of mucous patches; occasionally roseola, and osteoscopic pains.

In two cases I succeeded in producing an inoculable pustule from mucous patches—once, in a patient aged nineteen, affected only with mucous patches, I produced five inoculations; in another, a child aged two years, with inherited syphilis and patches at the anus, a reinoculable pustule was produced on the side and reproduced on the opposite side after five days.

Suppurating bubo occurred but once in these twenty-two cases—

^a Frequently from being under the rule of a stepmother.

^b No less than five of these patients attributed their final step to the influence of a young girl of eighteen, who has since been in the hospital suffering from disease.

five were affected with acute bubo, in which suppuration was imminent.

Case No. 60 illustrates some of the difficulties and subtleties of the disease;—either the discharge was of a specific nature, or the orifice of the sinus, though not larger than a crow-quill, was the seat of a sore.

Case No. 11 illustrates a remarkable form of secondary ulcer, which occurs at the upper part of the cleft of the nates. The ulcer is of a phagedenic character, very painful, and proceeds with great rapidity, producing a thin sanious discharge, and assuming the characteristic semicircular form. Though inoculation from the genital sore could easily be produced, from this ulcer it was impossible, affording a still further proof of its secondary character.

No. 5 and No. 14, though suffering from inoculable sores, illustrate severe forms of constitutional infection, the one being affected by jaundice and the other by epilepsy, at the period of development of the infection symptoms.

In a class of patients averaging eighteen years of age, of various temperaments (the lymphatic predominating) the treatment demands consideration. While some are robust and only a short time in town, others have suffered while pursuing their course of life, and are affected often by an extensive and irritable sore.

The hospital affording the hygienic advantages of cleanliness, ventilation, regular diet, and rest, in themselves important elements of treatment, I selected from these two sections, cases I considered the most favourable for an anti-zymotic treatment, where the constitutional signs were in an early stage of development. Creasote I found to answer well, the most convenient form being—

Creasoti, ʒss.

Mucilaginis, ʒi. tere et adde,

Tinct. Opii, ʒss.

Aquæ Menthæ P. ʒvii.

M. Sumat. ʒss. 4ter in die.

At the same time the use of a warm bath every second night with ʒii. vel ʒiii. acidi carbolicī, added to the bath, the patient remaining in half an hour, if possible. The earlier the stage of eruption or other manifestation, the more favourable will it be for this mode of treatment. In some instances of roseola the effect was very rapid and decisive.

TABLE I.

Cases Diseased for the First Time.—Tested by Inoculation.

No.	Age	Present Form of Disease	IF WITH DUBO			How long Diseased or Communicating	If Inoculated	What Signs followed	Treatment	What previous Disease	When previously it occurred	How long unvirtuous	OBSERVATIONS
			Suppurating										
			DENSE		Acute								
			Single	Double									
<i>Group A.—Inoculation Unsuccessful.</i>													
23	17	Sore on nympha, rather hard	—	1	—	2 weeks or more	resisted twice	papules	mercurial	1 fortnight before a sore on the thigh	none	—	the glands were very slightly enlarged.
140	20	Sore on nympha, rather hard	1	—	—	2 weeks	resisted once	papules, pains	non-mercurial	none	none	—	very stout and healthy subject.
146	20	Several soft sores of vulva	—	—	—	3 weeks	resisted once	severe papules and patches of mouth	non-mercurial	none	none	—	healthy otherwise.
45	19	Irritated partly, phagedenic sore of nympha	—	—	1	1 week	resisted twice	none	—	none	none	—	has never returned.
72	18	Patches of throat and chancrous erosion of vulva	—	—	—	3 weeks	resisted once	papules	—	sore 2 months	2 months	—	has never returned.
3	16	Several soft sores of vulva	—	—	—	3 weeks	do.	rosolia and pains	non-mercurial	none	none	—	of lymphatic temperament, healthy.
100	20	Soft sore at vagina	—	—	—	2 months	do.	iritis, copious papules, and pains	mercurial	none	none	1½ years	has been re-admitted, suffering relapse.
136	20	Soft sore at fourchette	—	—	—	1 month	do.	copious patches and rosolia	creasote and carbolic baths	none	none	3 years	—
174	26	Painful soft sore of labium	—	1	—	2 weeks	do.	iritis, maculae, and myringitis	mild mercurial	none	none	5 months	had previously a healthy child.
179	19	Soft sore and incipient patches	—	—	—	2 weeks	resisted twice	patches of throat, papules and pains	creasote and carbolic baths	none	none	3 months	strumous, nuchal glands dense
180	19	Indurated sore of nympha	—	—	—	2 weeks	resisted once	pains and papules	creasote and carbolic baths	none	none	3 months	glands of neck suppurating from struma.

Group B.—Inoculation Successful.

5	20	Discharge only	1	—	—	—	1 month	no	none	local	none	not before	—	—
—	—	Soft sore, erythema of throat	—	—	—	—	1 fortnight	yes	jaundice, pustules of scalp, papules pains, cachexia	non-mercurial	discharge	7 weeks	—	is about 3 months pregnant; produced a dead child at 8 months.
—	—	Pains, cachexia	—	—	—	—	—	—	—	—	soft sores	6 months	—	—
11	18	Soft sore at vaginal orifice	—	—	—	—	1 month	yes	ulcer of back	non-mercurial	none	not before	—	ulcer of back was phagedenic.
—	—	Ulcer of back	—	—	—	—	—	no	pains, cachexia, ulcer of back	non-mercurial	incurable sore	4 months	—	ulcer of back re-opened; is greatly broken down; has nuchal adenitis and alopecia.
60	22	Abscess labium gland of Bartholin, and sinus 1 inch long with ulcerated orifice	—	—	—	1	1 month	yes	papules and pains	—	none	not	—	—
—	—	—	—	—	—	—	2 weeks	no	elevated patches of vulva and tongue, papules	partly mercurial	incurable discharge	2 months	—	greatly broken down from syphilitic cachexia.
46	26	Several soft sores of labia	—	—	—	—	3 weeks	yes, twice	papulo-squamous patches, and pains	non-mercurial	none	not before	—	has had previously a healthy child, now alive.
154	16	Ragged soft sore at vagina	—	1	—	—	2 weeks	yes, twice	roseola and severe pains	non-mercurial	none	—	—	—
14	17	Large soft sore of nymphæ	—	1	—	—	3 weeks	yes, twice	roseola and severe pains, epilepsy	mercurial	none	—	—	—
65	17	Large soft sore at vagina	—	1	—	—	2 weeks	yes	roseola	non-mercurial	none	not before	—	removed from hospital as the eruption was developing
115	19	Large soft sore at vagina	—	—	—	—	2 weeks	yes, 4 times	vegetations and papules	non-mercurial	none	none	6 months	very robust. Very slight eruption.
176	26	Three large soft sores at vagina and labium	—	—	—	—	2 months	yes	copious, papules, and roseola	creasote	none	none	6 months	not on town. Infected at fifth month. Child born in hospital healthy and well nourished.
186	17	Soft sore at vagina	—	—	—	—	3 weeks	yes	cachexia and pains	creasote and carbolic baths	none	none	5 months	—
200	17	Indurated sore of labium	—	—	—	—	2 weeks	yes, twice	copious roseola, pains, and cachexia	creasote and carbolic baths	none	none	3 months	—

Inoculation from Mucous Patches.

19	19	Several elevated patches of vulvæ, cachexia, and pains	—	1	—	—	1 month	yes, 5 times	pains, cachexia; no rash as yet	non-mercurial	not known	had a sore about 1 month ago	1 year	extreme cachexia and threatened phthisis.
2	2	Ulcerated oval patches at anus	—	—	—	—	—	yes, twice	lichen	partly mercurial	inherited	—	—	had mucous patch at lip, which communicated disease to grand-mother.

Cases Admitted for the First Time to Hospital.

In the accompanying table of cases, affected for the first time, and not tested by inoculation, the number with primary sores uncomplicated by other local affection of the genitals, was considerable. I did not use inoculation in these instances, being satisfied that I would, as a rule, have succeeded. The sores were irregular—often multiple—and secreted pus freely. In two cases the sores were phagedenic—one not followed by any constitutional manifestations—the other by papules.

No. 77 and 101 are good illustrations of the form of secondary ulceration at the nates, referred to (case No. 11 of preceding table). No. 101, particularly, was one of great severity, the patient barely escaping death, though not having taken mercury, or there being any special influence but the infection, in existence.

No. 185 illustrates a case of supposed specific ulcer of the uterus. The surface was red and tolerably extensive, occupying a space equalling a florin; there was never any external sore or primary disease of the genitals, though the constitutional signs were copious.

No. 111 exemplifies a peculiarity with regard to the constitutional affection, that when it concentrates itself on the genitals, no other evidences show themselves on the skin, &c. Thus, the hypertrophy was very great, and the formation of patches most copious and profuse, while the integument bones and throat were perfectly free. In a case referred to (p. 518, No. 36) the disease has lasted for very many months, yet there have been no other manifestations whatever. In both these instances the hypertrophy has been so great as to necessitate amputation—local treatment was of no avail.

The creasote treatment was used, with the best results, for the early manifestations, and in cases where mercury was contra-indicated.

The caustic I found most suitable for such phagedenic sores (as case 111) was the crystalized carbolic acid; it acts efficaciously and rapidly.

This table gives sixteen cases of genital sores occurring for the first time, constitutional signs following almost without exception. In four cases suppurating bubo occurred, and in three the bubo was acute but not suppurating; in two cases single and dense, and in two cases double and dense.

TABLE II.
1st Admission Cases.—Not Tested by Inoculation, and Not Previously Diseased.

No.	Age	What present Disease	IF WITH BUBO			How long diseased	If inoculated	What constitutional signs followed	What Treatment	What disease occurred previously	At what date	How long unvirtuous	Observations
			Suppurating										
			DENSE	Double	Single								
4	20	Extensive patches and pains	-	-	-	-	no	pains and patches	non-mercurial	was not aware	not known	7 months	had been in an asylum 2 months.
6	20	Patches and pains	-	1	1	1 month	no	patches and pains	non-mercurial	sore and bubo	6 months	4 years	3½ years on town
-	-	-	-	-	-	2 weeks	no	-	-	-	7 months	-	-
7	21	Extensive patches of vulva and throat	-	-	-	1 month	no	Extensive patches of genitals and throat	non-mercurial	sore	2 months	8 months	has not returned.
12	23	Several soft sores	-	-	-	-	no	erythema of throat	non-mercurial	several sores	3 months	18 months	has been in an asylum 2 months.
-	-	Erythema of throat and cachexia	-	-	-	-	no	cachexia and pains	mild mercurial	-	-	-	suffered severely; had facial erysipelas.
17	22	papular eruption	1	-	-	-	no	jaundice	mercurial	slight sore	4 months	9 months	very copious.
-	-	Iritis and severe papular	-	-	-	-	-	papules, pains	iron	-	-	-	iritis treated with turpentine.
-	-	Iritis and papules and pains	-	-	-	-	-	patches of throat, iritis, alopecia	tonics, iodid potassium	-	-	-	7 months suffering from repeated outbreaks.
92	22	Several soft sores	-	-	-	-	no	patch of throat and vulva, no rash, but pains	non-mercurial	none other	never	18 months	-
-	-	Patches of vulva, cachexia, and pains	-	-	-	-	no	patches and pains	non-mercurial	soft sores	5 months	-	not severe, but is cachectic.
-	-	Patches of vulva and mouth	-	-	-	-	no	patches and pains	non-mercurial	sore?	10 months	-	cured by iodid of potass, in large doses.
105	30	Phagedenic sore of nympha	-	-	-	2 weeks	no	none	non-mercurial	never	2 weeks	3 years	freely cauterized; no bubos.
77	22	Sinuous bubo	-	-	1	-	no	none	-	was not aware	not aware	9 months	opened up freely.
-	-	Soft sore of labium	-	-	-	2 weeks	no	severe secondary ulcer of nates	-	-	-	-	cauterized, opium freely given
114	30	Soft sore and patches of vulva	1	-	-	married	no	papulo pustular	chloride of gold	not before	not before	married	treated by chloride of gold.
-	-	papular and erythema of lip	-	-	-	-	-	papular	-	-	6 months	-	treated by chloride of gold.
145	68	Patch of lips and throat and papular and iritis	-	-	-	married	no	papular, iritis	mercurial	-	not before	married	contaminated by grand-child
207	22	Patch of lip and throat and vulva	-	-	-	married	no	patches	non-mercurial	through pregnancy inherited	-	married	contaminated by pregnancy.
208	2	Ulcerated patch at anus and lichen	-	-	-	-	yes	patch and lichen	mercurial (mild)	-	-	-	inoculated on side from patch, and repeated on other side.

The brackets show the various admissions of the same patient.

TABLE II.—*1st Admission Cases.—Not Tested by Inoculation, and Not Previously Diseased.—Continued.*

No.	Age	What present Disease	If with BUBO			How long diseased	If inoculated	What constitutional signs followed	What Treatment	What disease occurred previously	At what date	How long unimproved	Observations
			DENSE	Suppurating									
				Double	Acute								
			Single										
157	19	Several soft sores and papules	-	1	-	5 weeks	no	papules	non-mercurial	soft sores	6 weeks	1 year	is thin, of lymphatic temperament.
183	21	Irritated soft sore at orifice	-	-	-	3 weeks	no	none	non-mercurial	not before	not before	6 months	has not returned.
111	21	Hypertrophy of labia and patches	-	-	1	-	no	local patches only	local	same affection	2½ years	3 years	labia removed.
158	25	Sores of labium	-	tender	-	3 months	no	papules and pains	creasote and carbolic baths	primary	3 months	2 years	has been 1 month in fever hospital.
26	24	Soft sores	-	-	-	1 week	no	papules and patches	non-mercurial	none	none	1 year	followed by cachexia and pains.
86	30	Soft sores	-	-	-	2 months	no	copious patches and sore throat	none	none	none	3 years	produced a dead child in hospital.
101	21	Extensive and acute phagedenic ulcer left of nates	-	-	-	3 weeks	no	none others	cauterized, tonic, &c.	none	none	1½ year	most rapid and severe ulceration
105	23	Phagedenic sore of nympha	-	-	-	6 weeks	no	pains and a few papules	-	none	none	3 years	cauterized with carbolic acid
106	8	Extensive patches of mouth and genitals—pains	-	-	-	10 months before	no	patches, &c.	-	sore at vagina	10 months	-	states that she was violated.
120	22	Irritated sore at vagina	-	-	-	3 months	no	none	local	none	none	2 years	probably not specific
143	27	Pains only	-	-	-	6 months	no	pains	non-mercurial	sore	6 months	2 years	had in arms a child of 2 months, which died of infection.
173	17	Soft sore of labium and abscess	-	-	-	1 week	no	-	local, non-mercurial	none	none	5 months	abscess opened; sore possibly not specific but from injury.
194	32	Extensive patches and inflamed labia	-	-	-	2 weeks	no	patches	local	sore	12 months	1 year	-
185	25	Ulcer uteri, patches, and roseola	-	-	-	3 weeks	no	patches and roseola	creasote and baths	none	none	6 years	has had two children not diseased.
190	27	Not diseased now	-	-	-	-	-	no evidences	-	states positively not	-	9 years	with syphilitic child which died with gummata on the liver.
144	20	Papules and cachexia	-	-	-	3 weeks	no	-	tonic and creasote	genital sore	6 months	7 years	has phthisis.
198	23	Psustular eruption and pains	-	-	-	3 weeks	no	pustular, cachectic	tonic and creasote	not known	-	3 years	with syphilitic child living, and infected by child-bearing; child cured.
199	18	Sore just healed	-	-	1	-	-	patches, extensive rash	-	sore and bubo	6 months	1 year	-
-	-	Extensive patches, papules, and sore of fouchette	-	-	-	3 weeks	resisted	do. do.	tonic, creasote, and carbolic baths	do.	do.	do.	-

No. 165 is a remarkably instructive case as to communicability of mucous patches, where a grandmother, a married respectable woman, became infected by patches from the grandchild's mouth—the initial point in her case being also a patch on the lip. She subsequently got double iritis, papular eruption, pains, and debility. The father of the child had been affected by primary five years before, and the mother had constitutional signs only.

From a total of fifty-four cases it will thus be seen that four only were not followed by constitutional signs—two being phagedenic ulcers; one did return; one was not thought specific.

TABLE III.

Cases which have been more than once affected with Genital Sores.

No. of Case	Age	Present form of Disease	IF WITH BUBO			How long diseased or commencing	If inoculated	What signs followed	Treatment	What previous disease	When previously to this date it occurred	How long uninvolved	OBSERVATIONS
			DENSE		Suppurating								
			Single	Double									
32	24	—	—	—	1 month	—	—	—	—	discharge	4 years	4 years	—
—	—	—	—	1	—	—	—	rash?	local	no sore known	3½ years	—	—
—	—	—	—	—	—	—	—	pains	mercurial	severe rash	3 years & 8 months	—	—
—	—	Several non-indurated sores	—	—	1 month	resisted once	—	do.	local	do.	do.	—	—
34	28	—	—	1	1 month	0	—	—	non-mercurial	sore and bubo	6 years	7 years	—
—	—	—	—	—	2 weeks	—	—	do.	—	severe pains and sores only	2 years	—	cachectic
—	—	—	—	—	1 week	—	—	do.	—	—	6 years	—	has epileptic fits (not specific)
21	21	Large ragged sore of vagina,	—	1	1 month	0	—	pains cachexia	do.	sore and vegetations	16 months	3 years	produced subsequently a dead child
—	—	Superficial sore, discharge	—	—	2 months	0	—	—	local	—	—	—	—
29	24	pains	—	1	—	—	0	—	local	sore only	1 year	4 years	—
—	—	Vaginitis and soft sore	—	—	1 week	resisted	—	none recognized	local	do.	do.	—	bubos, probably from vaginitis
44	25	—	—	—	1 month	0	—	none in 4 weeks	local	sore and rash	1 year	5 years	—
—	—	Soft sore at fourchette	—	—	½ month	0	—	papular	non-mercurial	do.	do.	—	operated on for fistula and
56	25	—	—	—	1 month	0	—	do.	local	sore and bubo	4 years	7 years	—
—	—	—	—	—	5 weeks	—	—	rash?	mild mercurial	severe rash	2 years	—	—
—	—	—	—	—	2 weeks	resisted once	—	copious papules	mercurial	do.	do.	—	—
75	40	Non-indurated sore of nympha	1	—	—	0	—	none stated	said to be mercurial	sore and bubo	about 10 years	20 years	—
—	—	Large non-indurated sores, pains, and papules	—	—	2 months	0	—	papules	non-mercurial	uncertain	1 month	—	in broken down health
70	22	—	—	—	—	0	—	papulo-squamous, pains and syphilitic child	local	primary sore	about 2 years	—	—
—	—	Indurated sore of nympha	1	—	1 fortnight	0	—	do.	mercurial	do.	do.	—	has a syphilitic child 1 month old
176	28	Extensive genital ulcers, non-indurated	—	1	1 week	0	—	uncertain	local	genital sore	about 1 year	7 years	removed from hospital unimproved
178	35	—	—	—	—	—	—	—	—	—	—	—	—
125	23	Extensive soft sore of labium	—	—	3 weeks	—	—	pains and papules	non-mercurial	general sores	several times, uncertain	8 years	died of weak heart

has a syphilitic child 1 month old removed from hospital uncurd

died of weak heart

TABLE III.—*Patients who have been affected on more than one occasion with Genital Sores.*

It will be seen that several of these cases have previously had primary sores, and had suffered from various constitutional developments. From these ten cases four had suppurating bubos, and in a fifth it was scarcely averted. No. 32, 34, 56 and 75 had sores and suppurating bubo, *followed by* constitutional signs, but now again were affected by genital sores, which, as a rule, resisted inoculation, and did not present any evidence as to induration or otherwise. No. 170 is remarkable as one where a syphilitic child was produced, yet the patient was affected by another sore (one month after delivery), which is indurated, and situated on the nymphæ, there being an indurated gland on one side; here it would appear the patient was the recipient of a second fresh infecting sore directly after the birth of a syphilitic child, which was cured by treatment.

THE CHRONIC SORE.

Table IV., page 518, shows the comparative frequency of a form of sore, the general characters of which are, great density of the surrounding edges, which are elevated, welt-like, and firm; smoothness of surface, and great insensibility, little or no secretion is furnished by the sore, and when healing it "skins" over leaving a cup-like and depressed cicatrix. The sore endures for years consecutively—in case No. 159 for 3 years; No. 85 for 4 years; No. 36 for 2 years—and very frequently it does not cause any concern to the patient owing to its want of sensibility. No bubo or enlarged inguinal glands have been noticed, and but few constitutional signs show themselves, and these of the later kind. The remedy which seems to me most to influence them is arsenic, fully and carefully administered, and also applied locally in the form of lotions—2 or 3 drops of Fowler's solution to the oz. of water. Whether these sores are capable of communicating the disease may perhaps be doubted—they are certainly not auto-inoculable. I have only once seen them exist in company with another form of sore. Whether they are sores *sui generis*, or the transition from syphilitic to lupoid ulcer is undetermined. In case No. 85 the ulceration was most extensive, and resembled epithelioma most remarkably; it occupied the entire opposed surfaces of the labia, was very slightly secreting, and became unbearable finally, from its extent more than its sensibility.

TABLE IV.—Cases of Chronic Sore, characterized by indurated and elevated edges, insensible surface, very scanty secretion, on granulations healing by a "skinning" over process, and existing from three months to four years.

Initial	Age	Present form of Disease	Bubo			How long diseased or communicating	If inoculated	What signs followed	Treatment	What previous disease	When previously it occurred	How long untroublesome	OBSERVATIONS
			DENSE	Double	Sup-purating								
39	47	—	—	—	—	married	0	Ititis and rash	uncertain	genital sore	12 years	0	almost blind from old iritis, inflammation, and cataract
—	—	Severe pains and chronic sore	—	—	—	2 years	0	do.	do.	do.	2 years	—	—
40	40	Chronic sore	—	—	—	1 year	0	none	local	same genital sore	18 months	16 years	—
22	26	Chronic sore	—	—	—	2 months	0	none	local	chronic sore	3 years	6 years	states positively that the sore has existed 3 years
—	—	Chronic sore, with dense edges	—	—	—	about 2 yrs.	0	none	do.	do. very large	do.	—	—
33	23	—	—	—	—	uncertain	0	—	—	discharge only	2½ years.	3 years	—
—	—	Ulcerated throat, and sore	—	—	—	probably 10 months	0	—	arsenical	chronic sore	1 year	—	has had a most extensive chronic sore
109	29	—	—	—	—	—	0	—	uncertain	primary	5 years	9 years	died
—	—	Chronic sore—syphilitic phthisis	—	—	—	18 months	0	none but pains	palliative	do.	do.	—	large cavities in the lungs
19	30	—	—	—	—	—	0	severe pains	local	genital sore	5 years	6 years	has prolapse vaginal wall—pregnant, and since produced a dead child at 7 months
"	"	Chronic genital sore	—	—	—	several yrs.	0	do.	do.	do.	do.	—	health completely broken
69	30	Chronic sore—recto-vaginal fistula	—	—	—	several months	0	alopecia, cachexia, chronic sore	tonics, &c.	chronic sore	about 2 years	7 years	edges very dense—lymph destroyed
36	40	Immense chronic sore	—	—	—	2 years	0	pains only	local & arsenical	same sore	2 years	26 years	—
159	26	—	—	—	—	2½ years	0	hypertrophy of labia	arsenical & local	same sore	3 years	5 years	—
"	"	Chronic sore of labium and rectum	—	—	—	3 years	0	do.	do. and tonic	do.	do.	do.	died of diseased liver, debility, and a few gummata
18	35	—	—	—	—	—	0	—	—	sore of labium	2 years	15 years	has existed two years continuously
—	—	Large chronic sore	—	—	—	2½ years	0	do.	do.	do.	2½ years	—	—
85	32	Extensive chronic sore of labia	—	—	—	4 years	resisted twice	none, but ulcer of hip very severe	arsenical and stimulating	same chronic sore	4 years	19 years	sore extremely like epithelioma, and most extensive—cured completely

SYPHILIS IN CHILDREN.

The number of children who die, so far as the history can be obtained, of hereditary disease, and where treatment is neglected, is remarkable, and will be seen by the observation columns of the tables. The state of health of the mother bears little or no relation to the condition of the child, one mother dying of ulceration of the laryngeal cartilages, while having at the breast a remarkably healthy child several months old. Another mother covered with eruption produces a remarkably plump and clean child. Another mother, five years after receiving the last sore, and herself since then perfectly healthy, produces a very badly diseased child; all were nursing their children.

The Parliamentary Report, 1868, sums up the testimony of sixty witnesses as follows:—"They testify to the prevalence of disease in children amongst all classes of society, its insidious nature, the frequent failure of all but men of great experience to recognize it, and, moreover, to the most important fact that the poisoned fetus in utero is no unfrequent cause of miscarriage in women."

Instances confirming these remarks are of constant occurrence in the hospital, as twenty-nine children have been under treatment during the past six months. So long, however, as the affection is confined to the surface, and that there is no internal deposit, the cases yield to mercurial treatment, and without any ill effects whatever. I have used chlorate of potash, and creasote internally. Chlorate of potash has succeeded in no case—creasote in some; but mercury gently used, acts almost as a specific.

The following exemplify some of the most acute cases:—

No. 4 proves the fact (referred to p. xv. of Parliamentary Commission, 1868) that mucous patches, the produce of inherited syphilis, are capable of conveying the disease in a most virulent form, and shows at the same time the undefined period after the occurrence of the sore that a man can be counted safe to marry. The father of this child I examined, and he stated positively that it was five years before marriage he contracted the sore, and that it was followed by a papular eruption two years afterwards.

SYPHILITIC CHILDREN BORN IN THE HOSPITAL OR ADMITTED
WITH THE MOTHERS.

1. Child of No. 20.—Mother in hospital, with patches, cachexia, and pains. Child born 4th January, rather “puny;” showed rash, and commencing patches on 11th (seven days after birth); cured with mercurial swathe.

2. Child of No. 31.—Mother had a sore and suppurating bubo five years since, followed in one year by pains; now has in arms her child, one month old, with snuffles and copious rash, and large patchy ulcerations at the nates. Cured by the constant application of *lotio nigra* to the extensive patchy surface.

3. Child of No. 78.—Diseased by husband while pregnant about four months. Child now in arms, two months old, puny and hoarse, with snuffles, eruption and patches. Treated with mercurial swathe. Mother had papular eruption over the body, and has still some on the palms, and also had a sore nipple.

4. E. S., No. 208, aged eighteen months.—Child of No. 207, in good condition, but suffering from mucous patches at the anus, and slightly at the mouth. Scattered lichen over the body—the produce of a mother infected by being pregnant of this child, and now suffering from mucous patches, some papules and patches of throat, and of a father who received a sore five years since, and showed papules, eruptions and pains. The child infected the grandmother by her fondling it while having the mucous patches at its mouth. She subsequently got double iritis and papular eruption and pains, and these at sixty-eight years of age. From the mucous patch at the anus of the child I produced an inoculable sore on the side. The child was cured with difficulty by mercurial treatment.

5. Child of No. 170.—Born eight weeks ago; since then the mother has got a hard sore on the nympha, and has copious papulo squamous rash, and alopecia. She had a sore also previous to being pregnant. The child showed mucous patches and rash over the body, and was treated by drop doses of creosote three times a day—the mother by mercurial inunctions. She is again pregnant.

6. Child of No. 143.—The mother has had three children; the last died at sixteen months old, and not of syphilis. About four months ago, when pregnant, she got a copious eruption, but has now no evidence of any taint whatever. The child has well-marked syphilis, and died at six weeks old, notwithstanding all treatment, mercurial stimulants, &c. On *post mortem* examination a well-marked gummatous elevation of the left lobe of the liver was found. There was considerable emaciation, but no other lesion. A cast taken of the liver shows the form of the gumma.

7. Child of No. 151.—The mother, apparently a very strong, healthy woman, had a sore six years, and again about five years since suffered from severe pains and alopecia, but did not observe any rash. The child, now three months old, is a specimen of infantile syphilis, while the mother is and has been in perfect health, and is nursing the infant. It is covered with eruption, and has snuffles, patches, and severe periostitis of the right tibia. I thought this a good case to test non-mercurial treatment. Chlorate of potash was freely administered, but without the least effect. Creasote I gave also for a few days, but the periostitis becoming very severe, I put the child under mercurial treatment by means of the swathe: it was completely cured in a few weeks.

TABLE V.—*Patients suffering from Constitutional Signs only.*

Out of forty of these cases, the occurrence of mucous patches in eight, proves how frequently these constitutional manifestations show themselves unaccompanied by any others. In three cases they were associated with severe nocturnal pains. In five cases, pains of a severe character alone were present on admission to hospital; the probability being that a roseolous or other eruption had occurred, unnoticed by the patient. Gummata severely affected three cases, in one of them occurring in clusters of four or five together; specific ulcerations, generally of a gummatus origin, formed in four cases occurring on the chest, legs, nates, and once in the mamma.

The general result gives—

Form of Constitutional Signs.			Form of Constitutional Signs.		
		Cases.			Cases.
Patches only,	-	8	Periostitis,	-	1
Patches and pains,	-	3	Nodes (acute),	-	5
Papular eruption,	-	4	Gummata,	-	3
Specific ulcerations,	-	4	Ulcerated throat,	-	3
Iritis,	-	2	Tubercles of tongue,	-	1
Synovitis,	-	1	Ulcer, uteri,	-	1
Pains (severe),	-	5	Chronic laryngitis,	-	1
Rupia,	-	2			

On careful inquiry into the history and concomitants of the primary sore, no less than fourteen cases had suffered from suppurating bubo. Some of these I had no opportunity of seeing, but the cicatrices are sufficiently evident; thus, following a sore with suppurating bubo, are found—

Patches,	-	-	-	-	-	2
Iritis and papules,	-	-	-	-	-	1
Patchy vegetations and pains,	-	-	-	-	-	1
Pains, &c.,	-	-	-	-	-	5
Papules,	-	-	-	-	-	1
Ulcerated nose,	-	-	-	-	-	1
Rash,	-	-	-	-	-	1
Ulcerated throat,	-	-	-	-	-	1
Ulcerated mouth,	-	-	-	-	-	1

Some of these instances are specially remarkable. Thus, No. 63 though not a strumous subject, had no less than five suppurating bubos. No. 47, almost a child—unquestionably under fifteen years of age—got a sore and suppurating bubo, for which she was in hospital, and discharged cured, but returned in a few days with

papular eruption and pains; double and very severe iritis soon followed, and directly afterwards nodes and periostitis of both tibias, gummata, and great cachexia, the later or tertiary symptoms coexisting with secondary or earlier. This young girl has been practically under observation from the first occurrence of the sore; it is possible, but exceedingly improbable, at her age, that she had another disease. No. 165 is remarkable as illustrating the latent nature of the disease; thus, the patient, eight years since, was the subject of a sore and suppurating bubo, and shortly afterwards she produced a child, which died "puny" at the twelfth day. This patient has been more than three years a wardmaid in the hospital, and states positively that she never had any other disease (which she has no object in concealing), yet never had any symptoms till now, as shown by a well-marked serpigenous and deep ulceration of the soft palate. No. 108 also shows a similar latency; for one year after the receipt of the sore no symptoms whatever show themselves till the sudden occurrence of a severe attack of iritis, accompanied directly by some pains and cachexia.

In so varied a series of constitutional phenomena, the treatment required many modifications. The adaptation of a mild and well directed mercurial treatment to the more obstinate affections, the use of iodide of potassium, tonics and baths in other cases, combined with the hygienic advantages of the hospital, as a rule succeeded; but not without exceptions, and very trying ones.

Several cases of iritis have been under my treatment during the past six months, in general associated with papular eruption. For this, as widely admitted, mercury is all efficient; three grains of blue pill three times or twice a day being quite sufficient; very seldom, but occasionally, the application of one or two leeches being required. For papular eruption, specially in the isolated and semi-squamous form, mercury also is most powerful, the use of carbolic acid or creasote baths being highly advantageous— $\frac{1}{2}$ oz. of carbolic acid added to a warm bath. I have used it in some instances in vapour, but find it is more manageable and efficient as a water bath. In case No. 66, with large papules having an ulcerative tendency, and in some similar cases, I found the chloride of gold, in doses of one-twelfth to one-sixteenth of a grain, most satisfactory. In all cases rest, cleanliness, and regular diet have the most beneficial effect; but nocturnal pains rather seem to increase in intensity for the first few nights in hospital. For these, warm baths give great relief, and procure sleep.

TABLE V.
Patients suffering from Constitutional Signs only.

No. of Case	Age	Present Form of Disease	IF WITH BUBO			How long Diseased	If inoculated	What Constitutional Signs followed	Treatment	What previous Disease	When previously it occurred	How long unvirtuous	OBSERVATIONS
			DENSE	Suppurating									
				Single	Double								
57	20	—	—	—	—	resisted	copious papules; patches, and alopecia do.	local mercurial	sore of labium do.	3 months do.	1 year	has had a healthy living child.	
"	"	Severe pains and patches	—	—	2 weeks	—	—	—	—	—	—	—	—
61	23	Patches and papules	—	—	3 weeks	—	Patches and papules	non-mercurial	—	—	—	—	sore just healed before admission.
1	—	Iritis and papules	—	—	1 month	—	Patches and papules	mercurial	mercurial	3 months	—	—	married; had a syphilitic child in arms, eight months old.
62	27	—	—	—	uncertain	0	pains and alopecia	non-mercurial	non-mercurial	about 2 years do.	8 years	—	—
"	"	Ulceration of nares and cachexia	—	—	do.	—	do.	local	local	do.	—	—	seems to have been diseased, on several occasions.
63	23	—	—	—	—	0	patches of mouth and arms, papules do.	non-mercurial	non-mercurial	sore of vagina do.	3 years	—	—
"	"	Patches of throat, tongue, and genitals	—	—	—	0	—	non-mercurial	non-mercurial	do.	1 year	—	had five suppurating bubos, but no indurations.
64	29	—	—	—	3 weeks	0	several genital sores	non-mercurial	non-mercurial	none	1 year	2 years	—
"	"	Jaundice, patches, and cachexia and papules	—	—	1 week	0	patches, &c.	mild mercurial	mild mercurial	several sores	about 6 months	—	coincident with the eruptions, &c., had very acute jaundice.
66	35	—	—	—	—	0	secondary and ulcers of legs eruption	local	genital sore	genital sore	8 months	—	married; diseased by husband.
"	"	Papulo pustular eruption of arms	—	—	1 month	—	—	chloride of gold	do.	do.	do.	—	has a healthy child four years old.
88	24	—	—	—	1 month	0	iritis, papules, pains, laryngeal thickening do.	non-mercurial	primary sores of genitals do.	11 months do.	1 year	—	—
"	"	Iritis, papules, and pains	—	—	1 week	0	—	iodide of mercury	do.	do.	do.	—	otherwise strong and robust.
90	35	Sub-acute synovitis of knee-joint	—	—	—	0	rupia, pains, cachexia, synovitis	various	do., sores	uncertain	16 years	—	health broken down.

TABLE V.—Continued.

No. of Case	Age	Present Form of Disease	IF WITH BUBO			How long Diseased	If inoculated	What Constitutional Signs followed	Treatment	What previous Disease	When previously it occurred	How long uninvolved	OBSERVATIONS
			DENSE	Suppurating									
				Single	Double								
50	26	—	—	—	1	1 month	0	pains and patches	non-mercurial	genital sore	1 year	—	—
"	"	Vegetations of thigh and genitals	—	—	—	1 month	0	—	do.	do.	do.	2 years	has since got cachectic, suffering severe pains.
38	22	—	—	—	—	—	—	—	non-mercurial	bubo only	1 year	—	—
"	"	Extensive patches of genitals	—	—	—	1 month	—	patches	do.	do.	do.	—	—
70	18	Patches of genitals, month, and throat	—	—	—	about 6 months	0	alopecia and patches	mild mercurial	sore ?	about 8 months	2 years	had been inoculated from bubo, subsequently had a sore, and since produced a well-marked syphilitic child.
73	20	Severe patches	—	—	—	about 8 months	0	cachexia and patches	do.	sore ?	10 months	2 years	had since primary, a dead eight-months' child.
24	26	—	—	—	—	—	0	—	—	sore	4 years	6 years	—
"	"	—	—	—	—	—	0	rash, pains, &c.	mercurial	copious rash	3 years	—	produced two children, which died.
"	"	Severe gummata of legs	—	—	—	1 month	0	do., gummata	tonic and local	—	—	—	much broken down, and cachectic.
20	20	—	—	—	—	1 month	0	—	local	sore	16 months	2 years	—
"	"	Patches and pains	—	—	—	1 month	—	patches, pains, cachexia	do.	non-indurated patches and pains	14 months	—	—
108	27	—	—	—	—	—	0	iritis, some pains	non-mercurial	primary sore	1 year	1½ years	—
"	"	Severe iritis only	—	—	—	1 week	—	—	mercurial	do.	do.	—	cachectic.
122	29	Mucous patches	—	—	—	—	0	pains, cachexia	tonic and iodide of potassium	primary sore	4 years	9 years	from asylum.
119	22	—	—	—	1	—	0	specific ulcers	non-mercurial	primary and bubo	3 years since	5 years	—
"	"	Severe ulceration of leg	—	—	—	2 weeks	—	—	do. and local	do.	do.	—	—

(141	24	—	pains, rash, birth of	non-mercurial	primary and	2½ years	4 years	—
			do.	do.	bubo	do.	—	three weeks since produced dead child.
168	26	Ovaritis and ulcer uteri	—	—	—	do.	—	—
149	26	Ulcerated throat	—	—	—	about 1½ years	2 years	—
151	28	Tubercles of tongue	—	—	0	do.	2 years	—
152	23	Some pains	—	—	0	5 years since	8 years	has a syphilitic child five years after infection; mother free from any signs.
155	28	Severe patches	—	—	1 month	4 months	5 years	—
163	35	Severe ulcers and gummata	—	—	0	3 years	10 years	—
165	28	Ulcerated nose	—	—	—	—	—	with diseased bone and nose destroyed.
171	33	Severe ulcers and gummata	—	—	1 year	3 years	married	produced triplets, who all died shortly, apparently syphilitic, and has a child, four years of age, highly cachectic and strumous.
175	22	Serpigenous ulcer of palate	—	—	—	8 years	8½ years	never had rash or other sign for eight years; had then a child, died on twelfth day.
181	30	—	—	—	—	do.	—	—
187	38	Severe ulceration of mouth and pharynx	—	—	0	14 years	15 years	only refers to one sore.
188	30	Severe pains only	—	—	1 fortnight	do.	—	cachectic and debilitated.
191	30	Severe patches and chronic ulcer	—	—	0	about 3 years	5 years	—
197	38	Patches and chronic ulcer	—	—	0	1 year	—	—
198	30	Pains and nodes	—	—	—	do.	—	—
199	30	Severe gummata and pains	—	—	2 months	10 years	17 years	—
200	30	Severe gummata and pains	—	—	3 months	11 years	14 years	suffers from clusters of gummata.

The cases of gonorrhoea admitted were, as a rule, of an acute character, associated with abscess of the labium in five cases—and with sores in five—with acute bubo in six cases, and in one with suppurating bubo.

The use of strong solution of tannin as an injection, water ablu- tion by means of a flexible hose, rest, and cleanliness soon obtained a cure in most instances.

In all acute cases, aphthous ulcerations existed even towards the surface of the nympha.

No. of Case	Age	Present form of Disease	IF WITH BUBO			How long diseased	If inoculated	What signs followed	Treatment	How long unvirtuous	OBSERVATIONS
			DENSE		Suppurating						
			Strigle	Double							
10	19	—	—	—	—	—	—	cachexia pains	non-mercurial	3 years	2½ years since had sore and suppurating bubo pregnant and produced a syphilitic living child is 8 months pregnant; abscess opened
—	—	Sub-acute and abscess	—	—	—	—	—	—	local	1 month	
107	21	Sub-acute and abscess	—	—	—	1 week	—	none	local	9 months	
121	27	Sub-acute	—	—	—	1 month	—	none	local	3 months	has considerable ovarian irritation has been diseased before
188	22	Acute and soft sores	—	—	—	2 weeks	—	abundant mucous patches	local and genital	3 years	
229	25	Acute	—	—	—	5 weeks	—	—	local	—	
167	26	Sub-acute and superficial ulcers	—	—	—	2 months	—	—	local and genital	—	ulcers are superficial and extensive about vagina had a sore and suppurating bubo 8 years ago, and has had since 3 dead children
150	38	Sub-acute and pains	—	—	—	2 weeks	—	none	local	—	
154	23	Sub-acute	—	—	—	3 weeks	—	none	local	2 years	
166	16	Acute and rent-like sore	—	—	—	2 weeks	—	none	local	1 month	sore probably not specific never had any sore; prolapsed uterus on several occasions; has had 3 children not diseased
2	38	Acute	—	—	—	2 weeks	—	none	local	16 years	
15	33	Sub-acute	—	1	—	3 weeks	—	—	local	15 years	
23	25	Do.	—	—	—	3 weeks	—	—	local	6 years	4 years in asylums had sores 2 years and 3 years since; has had patches and pains was sore 8 years since; never had constitutional signs of any kind has irritated papilla at meatus urinarius
26	35	Chronic	—	—	—	1 month	—	—	local	20 years	
27	28	Sub-acute	—	—	—	1 month	—	—	local	3 years	
30	19	Acute and abscess	—	1	—	1 week	—	—	local	2½ years	abscess of labium; pregnant 6 months abscess of labium
43	15	Acute and abscess	—	1	—	1 week	—	—	local	5 months	
49	34	Acute and large sore	—	1	—	2 weeks	—	papulo-squamous and patches	local and mild mercurial	3 years	
67	24	Acute	—	1	—	2 weeks	—	none	local	married	
68	25	Sub-acute	—	1	—	2 weeks	—	—	local	8 years	
76	19	Acute and abscess	—	—	—	2 weeks	—	—	local	3 months	abscess labium first time diseased had a sore 3 months ago nympha removed
84	22	Sub-acute and superficial sore	—	—	—	1 week	—	—	local	2 months	
87	19	Acute and abscess	—	—	1	3 weeks	—	—	local	6 months	
94	27	Acute and hypertrophied nympha	—	—	—	3 weeks	—	—	local and operation	5 years	

ART. XIX.—*On the Recovery of Sight after Atrophy of the Optic Discs.* By ROBERT P. OGLESBY, Assistant Demonstrator of Anatomy in the Leeds School of Medicine.

SEVERAL years have now passed since my first investigations on this subject were made, and I am not aware that any account, either directly or indirectly, has preceded my own.—(*Vide Lancet*, August 22, 1868, and *The Royal London Ophthalmic Hospital Reports*, April, 1869).

Extended experience more fully confirms my earlier convictions, that recovery of sight after atrophy of the optic discs is frequent, and, I may add, extremely frequent after the atrophy of acute inflammation. In some of the latter cases, not only does vision return after total blindness has followed the atrophy of the disc, but, what is more peculiar, disc circulation is sometimes restored, and the white and atrophied disc returns to its former healthy appearance. Several such cases have come under my notice, and I have watched their progress by means of the ophthalmoscope, from day to day, with deep interest, believing, as I do, that such changes occasionally take place in the reparation of diseased brain substance.

Although many cases of neuritis have come under my care, in which, after atrophy of the disc, circulation was restored, though total blindness had previously resulted; yet, it is doubtful if the circulation is ever restored in an atrophied disc, the result of primary white atrophy, if such atrophy has produced total blindness. Nevertheless, I have had ocular proof that the circulation is sometimes restored in a disc which has suffered from primary white atrophy, such atrophy not having totally destroyed vision. It is doubtful if such pathological changes ever occur if the disc has suffered from atrophy for a longer period than six months.

It is deeply interesting to watch such cases from the commencement of the disease. First, the effusion of lymph with commencing indistinctness of vision; secondly, the process of absorption; thirdly, the atrophic stage, with both the destruction of disc circulation and vision; and, finally, restoration of disc circulation and vision.

It would appear, from evidence I have elsewhere produced, that atrophied discs may, without the slightest apparent alteration in appearance, resume their normal functions, though for years such functions have been in abeyance.

I would say a few words regarding the length of time which

may elapse between the destruction and restoration of vision, and I refer to a former statement, made in my first paper on the subject, that an atrophied disc, the functions of which have been entirely in abeyance, may, after the expiration of a number of years, so far return to a condition of health as to be enabled to perform its functions normally. Such discs, I need hardly say, do not regain their natural capillary tint.

The time which may elapse between the destruction and restoration of vision is, I may state, very uncertain, the shortest time in any case of which I possess notes being four months, the longest four years. In the one case the blindness was due to neuritis; in the other to simple white atrophy.

After much difficulty, I have been enabled to define clearly three stages of convalescence in these cases. In the first stage the patient now and again catches glimpses of some very bright object, such as the blaze of a fire or jet of gas; afterwards, a more correct knowledge of the light so seen. It frequently happens that convalescence at this period remains stationary, often for months. Much reliance may be placed upon this first symptom of returning vision, and from it we may almost with certainty prognosticate the return of useful, if not perfect vision; this we may more safely do, if the patient can with precision direct his hand to the object seen.

In the second stage, vision so far improves as to enable the patient to judge the size of objects, and to avoid any obstacles in his way as he passes along the streets.

The third stage is completed when the patient can distinguish colours, and if this be accomplished with any degree of accuracy, then convalescence is rapid and permanent.

It is to the last stage that I would draw particular attention, for the following reasons:—

First, If the patient fails to distinguish colours with any degree of certainty, then good vision is seldom attained.

Secondly, If discernment of colours be but moderately accurate, then, in all probability, the patient will regain vision sufficient only to enable him to pursue some out-door occupation.

Thirdly, If colours be readily and accurately distinguished, perfect vision may follow.

In a medico-legal point of view, this subject is extremely interesting, for disease of the optic discs so frequently occurs after railway concussion. The discs not unfrequently suffer atrophy after these accidents, and favourable verdicts are often given, and

given justly on such grounds; but who can deny that discs so suffering may not ultimately return to a condition of health, and to a due performance of their proper functions?

In a future paper on the subject, I hope to adduce evidence regarding the condition of the optic disc after railway concussion.

ART. XX.—*On Essential Phthisis Bulbi.* By H. ROSBOROUGH SWANZY, M.B., L.R.C.S.I.; Assistant at Prof. von Graefe's Ophthalmic Hospital, Berlin.

THE name Essential Phthisis Bulbi has been applied by Prof. v. Graefe (*Archiv. f. Ophthalm.*, xii. 2, page 256) to a peculiar affection of the eye, in which the principal feature is a great and sudden reduction in the tension of the eyeball, followed by a more gradual return to the normal intra-ocular pressure.

The form of phthisis bulbi with which we usually meet is the result of an inflammation of the internal membranes—for the most part a purulent irido-choroiditis. It appeared that a somewhat similar condition as regards reduction in size and change of shape, but above all, as regards diminution of tension, might occur without any pathological change in the interior of the eye, and hence the name essential phthisis bulbi.

Of this affection there have been, until now, two cases published, the first by von Graefe (*loc. cit.*), the second by Nagel (*A. f. O.* xiii. 2, page 407). The patient in von Graefe's case was a peasant who had received an injury from a goat's horn, the result of which was a small conjunctival cicatrix and the occlusion of the inferior lachrymal canal. Nagel's case was that of a patient upon whom he had performed the simple operation for strabismus. The following is a case which I have had the opportunity of observing in Prof. v. Graefe's clinique:—

Frau Tschenisch, aged thirty-seven, blind in consequence of a cataracta matura on each eye. She had not been previously short-sighted. There was no sugar in the urine. The perception of light and the projection were good, and the phosphenes precise.

The extraction of both cataracts was performed on the 24th May, 1869, by Prof. v. Graefe. In consequence of the youth of the patient, and the absence of any other discoverable cause for cataracts, von Graefe diagnosed a diseased vitreous humor, and

prognosed the probable prolapse with loss of a portion of it during the operation. At the delivery of the lens a considerable loss of vitreous took place in both eyes. In consequence of this the eyes became very collapsed; however, under a tight pressure bandage they regained their normal consistence within forty-eight hours. The further process of healing was quite normal, the only thing to be remarked being that the wound in the left eye did not simply unite, but a half transparent substance became formed between the edges of the wound, similar to what is seen in cystoid cicatrices after iridectomy for glaucoma. In this case, however, there was no ecstacy of the cicatrix. The space between the edges of the wound was about a quarter of an inch wide. This is a form of union of the wound which I have repeatedly seen after cataract operations, without ever any evil results.

After the operation the patient was kept for three weeks in a darkened room, inasmuch as eyes after cataract operations, attended with loss of the vitreous, are liable for a long time afterwards, on exposure to light, to an irritation which may have serious consequences. I then moved her into a lighted room, where, next day, both eyes became irritated, ciliary neuralgia, a flowing of tears, and a slight pericorneal injection. I ordered her at once to go to bed in a dark room, and gave her a subcutaneous injection of morphia. A few hours afterwards the symptoms had vanished. Both eyes had been equally irritated. Two weeks afterwards I allowed the patient to commence once more to accustom herself to the light; and this was done in the most careful way, by allowing her to spend a short time each day in a half-lighted room.

Everything went now well until the day six weeks after the operation (5th July). At the morning visit she complained of a sensation of pressure in the left eye, which she had first observed an hour before on getting out of bed, and said that she saw somewhat more indistinctly with this eye. In the anterior chamber there was a small hemorrhage. A traumatic separation of the retina struck me as probable, and on palpation of the bulb I found its tension most remarkably reduced ($-T_3$). The patient denied a trauma; and, as she was a very sensible woman, I could not take it for granted—unless, indeed, it might have occurred during her sleep. Besides the hemorrhage in the anterior chamber and a slight pericorneal injection, there was nothing abnormal to be seen on the exterior of the eye. The wound was not burst, and there was no wrinkling of the cornea. There was no flowing of tears nor any

other symptom of irritation. The ophthalmoscope discovered many opacities in the vitreous humor, but no separation of the retina. Fingers could be counted at 3', and large type read without a convex glass. The field of vision was free. I must here remark that I had, until now, made no ophthalmoscopic examination of the eye, nor had I tested with precision its power of vision, having previously had no particular object in doing so. I thought it better, with such irritable eyes, to postpone the more exact examination as long as possible. It may therefore be, that the opacities in the vitreous were there beforehand, but the fact that there were no opacities in the vitreous humor of the other eye speaks somewhat for the contrary. Before the attack the patient could count fingers at 3' by candle light; it had therefore produced at least no very considerable reduction in the acuteness of vision. Not seeing any indications for an active treatment I merely ordered her to lie in bed in a darkened room, and to carefully protect the eye. In the evening no change had taken place.

On the 6th, at the morning visit, I found, to my astonishment, an evident increase of the intra-ocular pressure. At the evening visit it had increased still more ($-T_2$). The hemorrhage in the anterior chamber had disappeared. The patient said she could see to-day again clearly. The field of vision free. Fingers at 3'. On the 7th the consistence of the eye was still harder. On the 8th it was quite normal. Nothing to be discovered with the ophthalmoscope.

On the 9th the left eye had again become very soft, although not so very much as on the 5th—perhaps ($-T_2$). Yesterday, after the evening visit, the patient had a sensation of prickling in the eye and slight ciliary neuralgia, which did not last long. To-day she complains somewhat of seeing sparks before the eye, and there is an unimportant flowing of tears. She has that same peculiar sensation of pressure in the eye as with the first attack. There is no hemorrhage in the anterior chamber. No separation of the retina. There is no increase to the opacities in the vitreous humor. Fingers counted at 2'. Field of vision free.

10th.—Morning: Slight increase of the intra-ocular pressure. Evening: Pressure still increasing. The subjective perceptions of light are to-day less than yesterday.

11th.—The pressure higher. The flowing of tears and subjective perceptions of light have ceased.

12th.—The intra-ocular pressure has reached its normal height.

15th.—The consistence of the eye is again very soft ($-T_2$).

16th.—Morning visit: The internal pressure of the eye has increased considerably. Evening visit: The pressure is normal. With this attack the patient had no other sensation than that of a gentle pressure in the eye. The eye was not in the least irritated.

23rd.—Since the 16th the pressure has remained normal. To-day, at the evening visit, it did not amount to more than ($-T_3$). The eye remained at this tension until the evening of the 27th, when I was able to observe a slight increase in the internal pressure.

On the 28th the pressure had distinctly increased ($-T_1$).

On the 29th, however, the pressure had again sunk to ($-T_3$).

On the 31st (morning visit), pressure somewhat elevated. At the evening visit the eye had again attained its normal consistence. These last two attacks were only attended with a slight diffused redness of the sclerotic and the sensation of pressure.

On the 4th August, the intra-ocular pressure remaining normal, and the patient's means not permitting of a longer stay in the hospital, I tested exactly her power of vision before discharging her, whilst, at the same time, I sought her out suitable spectacles. The acuteness of vision of both eyes was exactly the same—namely, at 14 feet, with $+4$ Snellen xl.; therefore more than $\frac{1}{3}$; with $+2\frac{1}{2}$ No. 5 of Jaegar was read at 7 inches. In the left eye the opacities of the vitreous had decreased. The fundus oculi was normal. The incomplete acuteness of vision of this eye is accounted for by the opacities in the vitreous, and a thin secondary cataract, which partially covers the pupil. The acuteness of vision of the right eye corresponds to a more extensive secondary cataract. The wound in this eye is simply united.

A short time ago I had a letter from the husband of the patient; he is a postman in the country, and writes:—"A fortnight after her arrival the eye got worse than ever it had been in Berlin; it felt as if it would burst, flowed over with tears, and was quite soft; however, by quietly remaining in bed, it became again better, and retains still its proper constitution." The correctness of this observation with regard to the softness of the eye may be depended on, as the very intelligent patient had become aware of its occurrence while in the hospital.

What is very remarkable in this case, and in which it differs most from the two cases already published, is the absence of any change in the form of the eye by such great reduction in its internal

pressure. In the former cases there was a wrinkling of the membrane of Descemet, which produced a diminution in the acuteness of vision, besides a great flattening at the insertions of the recti muscles. Nothing of the sort was present in our case. The cornea retained its usual brilliancy; and although pressure on the eye produced a corresponding depression, this became filled out again as soon as the finger was removed. Neuralgic pains formed a principal symptom in von Graefe's case; here, in the five attacks observed in the hospital, only one was attended with pain, and it was of no greater moment than a slight ciliary neuralgia.

It is also remarkable, that the only sensation which the patient constantly experienced with these reductions in the tension of the eye should have been one of pressure, as if the eye were too large or too full. This may perhaps be explained by the pressure produced on the ciliary nerves by the swollen choroidal vessels, swollen in consequence of the hyperemia *ex vacuo* which must have existed. The effusion of blood into the anterior chamber with the first attack was, without doubt, caused by the sudden hyperemia *ex vacuo*; it probably took place from one of the vessels of the iris.

It is not easy to account for these vacillations in the intra-ocular pressure. That a nervous disturbance plays the principal part in producing them must be admitted; but what the nature of this disturbance may be we cannot say. We cannot explain them by means of a reflex irritation of the trigeminus; for Donders, and again lately, von Hippel and Grünhagen, have experimentally proved that irritation of this nerve produces an increase of the pressure. The latter authors have also shown that the result of an irritation of the sympathetic is a reduction in the pressure of the eye; but unless we accept a primary central irritation of the sympathetic we are again at a loss, for we cannot well conceive a reflex passing from the trigeminus to it. Such a reflex has certainly not as yet been proved to exist.

There is, however, another difficulty with which we meet—even supposing the nervous disturbance to be explained—and that is, in the vitreous humor itself. It is not easy to imagine how so much of the gelatinous substance of the vitreous can so swiftly be absorbed as to produce such sudden changes in the consistence of the eye. But if instead of the normal vitreous we have a true fluid, a serous exudation, which exists under conditions of constant absorption and transudation, then it is much easier to understand

how, surrounded by such a vascular membrane as the choroid, a large quantity of such a fluid may become quickly absorbed. And such we believe to have been present in our case. My friend Dr. Gouvêa has proved experimentally, and Prof. Iwanoff has shown (in a paper about to be published in the next *Archiv. für Ophthalmologie*), that in all cases of extraction for cataract attended with considerable loss of vitreous, the latter becomes separated from the retina, and the space left between retina and vitreous becomes filled with a serous exudation, the vitreous itself not being regenerated. In our case there was great loss of vitreous at the operation; we are therefore authorized to take for granted a separation of it, and the consequent serous exudation; and in this way is supplied what appears to be an important factor in accounting for the unusual phenomena of our case. Separation of the vitreous may occur idiopathically, and is indeed by no means an unusual condition, a very good power of vision being compatible with it. It is therefore possible that in the two cases already published a separation may also have existed.

ART. XXI.—*On the Cure of Uterine Epilepsy.* By LAWSON TAIT.

SCARCELY an article on epilepsy has been written which does not refer to cases of female epileptics, in whom menstrual irregularities are frequent, and cases have been frequently noticed in which exacerbations of the disease could be traced to irregular or deficient menstruation. Pregnancy, also, has been noticed to exert an influence, sometimes for good, sometimes for ill, over the poor epileptic. It has not been noticed, however, as far as I am aware, that deficient menstruation, or its total absence from the condition named by Sir J. Simpson, "infantile uterus," may be the direct cause of epilepsy, and that the rectification of this condition will cure the epileptic. I have twice met with cases where dysmenorrhea, from stricture of the canal, had caused epileptiform seizures; and in both these cases I effected cures by operative interference. But the following case will show clearly that even the formidable "*grand mal*" may be directly dependent on the condition of the uterus, and that it is capable of cure.

Jane C., aged twenty-five, a stout brunette, was sent to me from Barnsley, in April, 1868. Although presenting all the usual appearances of womanly development, she had never yet

menstruated. About five years ago she was attacked by what were recognized to be slight epileptiform seizures. These were noticed to occur regularly at monthly intervals, and to last for about three days. They increased rapidly in severity, and soon exhibited the distressing characters of the "*grand mal*," as she became unconscious during the severe seizures, and fell into a prolonged and deep sleep after their cessation. During the twelve months preceding April, 1868, the fits had lost their periodic character, and, although markedly more severe at the monthly periods, they also occurred frequently during the intervals. She had been in receipt of a great variety of advice and treatment, but without benefit.

When the case was detailed to me it seemed quite clear that whatever benefit was to be obtained must be from treatment of the amenorrhœic condition. I at once explained this to the patient and her friends; told them that the virgin condition of the patient was an objection to the course of treatment which I intended to advise, and that I would not undertake the case unless they would promise to leave the case entirely in my hands for at least six months, and to render me implicit obedience in all things. They consented to my conditions, and I at once made an examination to determine the condition of the uterus, but could find no indications of the existence of the organ—the vagina seemed to end in a *cul-de-sac*. Next day I put the patient under chloroform, and after a prolonged examination, *per rectum et vaginam*, I determined that an infantile uterus did exist, of normal length, but of a diameter not greater than that of a crow quill; and into this, after a great deal of manœuvring, I succeeded in passing a surgical probe.

Having satisfied myself of the patency of the canal, I gave the friends a favourable prognosis of the case—a prognosis which I am glad to say has been fulfilled.

I had a galvanic pessary made of the ordinary pattern and as small as was consistent with strength, about the diameter of No. 1. catheter, and I succeeded in passing it up to the bulb into the uterus. Rectal examination enabled me to satisfy myself that it was safely lodged, and you may be certain that it was a work of no ordinary difficulty when I tell you that it took me an hour to accomplish, the patient being all the while kept under chloroform by my friend Dr. Sykes. The introduction of the pessary was effected a few days before the occurrence of the monthly exacerbation of the fits, and it was followed, as I warned the relations it might be, by fits apparently more severe than she had ever

experienced. At the monthly period I leached the perineum, and administered aloes and iron, without any benefit. During the month of May the fits were as bad as ever, and the leeching and drugs had no effect. Immediately before the monthly period of June I removed the pessary, and introduced an ordinary No. 1 size, and this was followed by very severe fits. The zinc of the small pessary had entirely disappeared. During the remainder of this month, and in July, the intercurrent fits were noticed to be much less severe, and it was only when I introduced No. 2 that their original severity recurred for a day or two. In August she had no fits until the day after I had introduced No. 3, when she had a few very severe seizures. In September she had no attacks until No. 4 was introduced, and then she had two or three, but only slight. By this time the uterus was becoming large in size and could be felt in the rectum like an elastic No. 12. catheter. In the vagina a distinct cervix was to be felt which rendered the introduction of the pessaries comparatively easy. I introduced No. 5 about the end of October, and next she had one very severe seizure—the last she has had. She wore this pessary for two months. In the second week of January, 1869, I introduced No. 6, and this she wore till the 24th of May, and up till this day (September 19th) she has not had the semblance of an epileptic seizure. The uterus is now of normal size in all its measurements, and, I trust, is likely to remain so. During the thirteen months in which she wore the pessaries, she had profuse leucorrhœal discharge, and it is quite likely that the cessation of this may induce a menstrual flow. As I have every reason to believe that the ovaries are developed, I have advised the patient to do that for which she has been very anxious, to get married, and I trust her altered social condition will insure a permanent cure.

It is now many years since Professor Simpson showed the enormous benefit to be derived from the use of his galvanic pessaries in many cases of nervous diseases depending on the condition of the uterus, more especially in his celebrated case of uterine asthma. In my epileptic patient the benefit has been as decided, and, I believe, that there are many similar cases which might yield a similarly successful result.

I believe that the beneficial result is obtained, not so much by the galvanic action directly, as stated by Sir James Simpson, but by the weakly irritant, stimulant, and long sustained action of the chloride of zinc which is formed.

ART. XXII.—*Probable Evidence as to the value of Pancreatic Emulsion of Fat in Tubercular Consumption.* By RICHARD JOHN KINKEAD, A.B. and L.M., T.C.D.; L.R.C.S.I., &c.

IN canvassing in our minds the value of any remedy, we have to consider two things—the theory on which it is recommended, and its effects when applied. To do this we must make use of two distinct kinds of evidence, demonstrative and probable. A theory being the conclusion or synthesis which we arrive at after the consideration of certain elements, we should be able to demonstrate its truth by showing the relation which these elements bear to one another, and to the synthesis composed of them. We should be as well able to demonstrate its truth as we are that of a mathematical problem.

If we would comprehend any theory we must analyse or resolve it into its component elements, and then reconstruct it. “We analyse only that we may comprehend. We comprehend only in as much as we are able to reconstruct in thought the complex effects which we have analysed into their elements.”

The “value of every theory depends on the value of the foregoing analysis. If the precedent analysis afford false elements the subsequent synthesis of these elements will necessarily afford a false result.” The certainty or uncertainty of a theory, therefore, depends on the certainty or uncertainty of its elements. If the elements furnished by the analysis are uncertain or hypothetical the theory must be conjectural.

Now, as our knowledge of the functions of the various organs of the human body is at present somewhat uncertain, and as the *modus operandi* of substance on the animal organism is still hypothetical, theories founded on the supposed action of substances on these supposed functions must be more or less conjectural. It therefore happens, that however like truth any theory appears, we are driven, in order to test its value, to examine the effects of the remedy it puts forward when applied in practice.

To do this we make use of probable evidence. “Probable evidence is distinguished from demonstrative by this, that it admits of degrees, and all varieties of them, from the highest moral certainty to the very lowest presumption.”

We have a theory, that a certain substance will produce a certain effect. We administer this substance and we find that it

produces the expected effect. Here we have the lowest possible presumption, that in a similar case it may produce a similar effect; there is also, on the other hand, as strong a presumption that it may not, but if we find from numerous cases that the same effect is frequently reproduced by the same agent, then the presumption that, *ceteris paribus*, it will produce the expected effect becomes stronger, and the presumption against its doing so weaker. And so, according to the constancy with which the anticipated action takes place, we judge that it is possible, it is probable, or it is morally certain the same cause will produce the same effect.

It is obvious that the greater the number of results we can obtain the stronger will be the probability for or against the anticipated result of the remedy.

As the experience of each individual practitioner is limited and more especially so in the case of remedies for special complaints, the amount of probable evidence he can bring forward from his own observation must of necessity be comparatively small. It therefore seemed to me, having some knowledge of the theory on which pancreatic emulsion of fat is recommended for the treatment of tubercular disease, and some experience of its effects, when administered in phthisis pulmonalis, that by collecting and tabulating the experience of those medical men who had used it in that disease I could lay a much stronger probable evidence as to its value before the profession than it would be possible for me to do by merely publishing the cases that have come under my own care; and as in this kind of evidence the smallest probability has weight, I also endeavoured to obtain the opinion of the public as to its efficacy, as expressed by the quantity purchased from the various vendors.

Although it cannot be denied that many medicines have obtained a popularity altogether undeserved, yet I think it will be found that such popularity has been evanescent; whilst, if the demand for a remedy increase steadily, or even keeps constant, it affords a strong probability that it is useful.

In order to carry out this design I drew up schedules No. I. and No. II., and sent them respectively to all those apothecaries and medical men in Ireland whom I thought it likely would have kept or used the emulsion.

Hardly a tenth of the Schedules No. II. sent out were returned to me filled up. I hope that if at a future period another report on the subject is published all those who have used this remedy will furnish their quota of evidence for or against its usefulness,

and so enable the profession to arrive at a more decided opinion as to its merits in the affections for the treatment of which it has been recommended, and of the truth of the theory on which it has been brought forward.

SCHEDULE No. I.

NAME AND ADDRESS	1. Whose Preparation of Pancreatic Emulsion has been chiefly asked for	2. Has the demand for the Emulsion increased or decreased, say within last two years
Hamilton, Oldham, Long, and Co., Dublin.	With us Savory and Moore's preparation has almost superseded all others, it keeps so well.	The sale of Pancreatic Emulsion has greatly increased, at least quadrupled within the last two years. In fact it is now one of our standard articles of that class, with every likelihood of the demand being continuous.
Apothecaries' Hall of Ireland, Dublin.	We have always kept Messrs. Savory and Moore's preparation.	The demand has been steadily increasing for the last two years.
Boileau and Boyd, Dublin.	We sold only the one preparation, that made by Savory and Moore.	We think the demand has not much increased. We sold about the same quantity in 1867 and 1868.
Hunt and Co., Dublin.	We keep Savory and Moore's Pancreatic Emulsion.	As far as we can judge, would say the sale of Pancreatic Emulsion has not increased.
Bewley and Draper, Dublin.	The preparation of Savory and Moore has, we think, been most commonly asked for.	Have at no time sold much Pancreatic Emulsion. Since January, 1869, the demand with us has slightly increased.
W. and M. Goulding, Cork.	Savory and Moore's.	The demand is increasing.
Grattan and Co., Belfast.	We never sold any Pancreatic Emulsion but Savory and Moore's, nor been asked for any other.	We do not think there has been much change in the demand for last two years.
Howell and Graham, Clonmel.	Savory and Moore's.	Not much demand.
Anderson and Adams, Dublin.	Savory and Moore's.	The demand has considerably increased with us.

SCHEDULE No. 2.

NAME AND ADDRESS	1 In how many Cases of Consumption have you prescribed Pancreatic Emulsion?	2 Whose Preparation?	3 In what Doses, at what Interval after Food, and for how long a time did you administer it in each case?	4 What is your opinion of its effects upon a. Digestion? b. Nutrition? c. Weight of Patient?	5 Have you found that Patients that Patients can take the Emulsion, could not take Cod Liver Oil, when they cannot take Cod Liver Oil?	6 Have you found that Patients who, before taking the Emulsion, could not take Cod Liver Oil, have been able to do so after having used it for some time?	7 What is your opinion of the effects of the Emulsion in I. True First Stage of Consumption (Pre-tubercular)? II. Stage of Tubercularization? III. Stage of Softening? IV. Stage of Excavation?	GENERAL REMARKS
Dr. John M'Veagh, 24, Frederick-st., Rutland - square, Dublin	about twenty	Savory and Moore's	one tea-spoonful immediately after meals in most of the cases. I continued it in many of the cases for upwards of a year; in others, where it evidently disagreed, only a short time	a. Beneficial in some cases b. Increased it c. Some decidedly gained flesh whilst taking it	emulsion seemed to be more repugnant to the bulk of my patients	I have never noticed this effect	- I. Beneficial II. do III. and IV. Not much use	in the first stages of phthisis its use was beneficial in at least half of my cases. In the advanced cases, no good results from its administration. In two cases, it nauseated, causing increase of diarrhoea
Dr. * * * Dublin	seven or eight	Savory and Moore's	two ounce doses at meal times. Two months.	c. Increases weight of patient	yes	no	I have not sufficient experience to answer	I believe it to be an excellent substitute for fish oils, when the stomach rejects the latter
Dr. Turner, Colon, Drogheda	one	Savory and Moore's	desert spoonful two hours after meals. Ten days	a. Digestion very much improved b. Appetite very much increased	—	—	have not sufficient experience to answer	—
Dr. W. Cuppaidge, Castlereagh	only a few	Savory and Moore's	a tea-spoonful in milk about two hours after dinner. In last case about six weeks	a. Increased digestion b. Assimilation	yes	did not give cod liver oil after	in last case would say first stage has been arrested	I do not take notes of cases
Dr. Martin, Portlaw	several; but can only give results in six correctly	—	—	—	yes	yes	II. Second stage decidedly benefitted IV. For a time much benefitted	On the whole, I think well of the Emulsion. N.B.—Dr. Martin's letter appended.
Dr. Ffrench, Headford	one	Savory and Moore's	two tea-spoonful twice daily— one hour after meals. Two months	—	yes	yes	II. Emulsion acted very well in the case I tried it, viz., stage of tubercularization	—

Cases at Steven's Hospital, Dublin. Reported by S. Flood, M.B.— <i>Med. Press & Cir.</i> , Oct. 7, 1888	seven	Savory and Moore's	two drachms in milk three times a day	<i>a.</i> Improved digestion <i>c.</i> Gained flesh—19 lbs. in 49 days. One patient gained 11 lbs. in 3 weeks—since lost 5 lbs.	yes—proved far superior to the oil alone in those cases in which it was taken combined with cod liver oil	yes—patient was enabled to return to the oil, which, with aid of Emulsion, he can now easily take. In several instances patients who were at first quite unable to take cod liver oil in slight doses, found that a few drms. of Emulsion enabled them readily to do so.	II. Benefitted. IV. do.	the stages of phthisis of the other five cases not mentioned; but the Emulsion and oil proved in all far superior to oil alone
Dr. Kinkead, Tuam	several; but have only been able to watch for some time and keep accurate record of six	Savory and Moore's	began with 1 dr. doses in milk. Length of time after food varied according to quantity eaten—generally from 1 to 2 hours. Dose increased by degrees to 3 drachms. 2, 4, and 10 months	<i>a.</i> Very much improved both as regards fatty and other kinds of food <i>b.</i> Very much benefited <i>c.</i> A marked increase—one patient gained 6½ pounds in three weeks	yes—in many of my cases this has been a well-marked feature	yes—it has been frequently remarked by patients themselves that they could easily take not only cod liver oil but fats after they had used the Emulsion	I. Very beneficial II. do. III. and IV. I have found its value in these stages to vary in proportion to the amount of tuberculous deposit	my experience of this remedy has been most satisfactory. Some cases have been under my observation from one to two years. In some cases that recovered, there was strong hereditary taint, and the hygienic condition was very bad
Henry S. Purdon, M.D., College-square, Belfast*	three cases	—	in tea-spoonful doses, after food administered in milk	<i>a.</i> Promotes digestion <i>b.</i> Patient appears to grow in weight and in flesh <i>c.</i> Ditto	yes	—	I. In one case a boy, aged 12, attacked by first stage of phthisis, the effects of the remedy were amazing; and at the present time no symptoms of consumption remain. III. One case, a man, age 40, stage of softening derived much benefit from the Emulsion, and has gained in strength and flesh. One case only a few months under treatment	—

* Extracted from "Report on the Experience of Medical Men who have used Pancreatic Emulsion of Fat," By Horace Dobell, M.D. London: 1887.

Dr. MARRIN'S *Letter*—No. 1. Chronic stage phthisis, age 40, female—took it with advantage; but, as cod liver oil always agreed well with her, I could not find any special advantage.
No. 2. Tubercular disease, male—Solidification of large portion of left lung. Kept by treatment in a quiescent state. Suffering from intense heartburn and acidity of stomach. Agreed well, but did not relieve the dyspeptic symptoms without the use of other medicaments. Case progressing. Now, large cavity in upper portion of lung, and severe hemoptysis; yet, kept well up by use of charcoal, quinine, and tannin.
No. 3. Phthisis in second stage—Decidedly benefited.
No. 4. Excavation—For a time much benefited; night-sweats checked, and enabled to take cod liver oil, which she could not do before. Ultimately, death resulted from sudden hemorrhage.
Nos. 5 and 6. No way benefited by use of the Emulsion.

Report on Schedule No. II. gives the evidence of nine Irish medical men who have used the emulsion, and its effects in fifty-three cases. The emulsion used by all was that prepared by Messrs. Savory and Moore, of London.

Those who have answered question 4 have found the digestion and nutrition improved, or the weight of the patient increased by its administration. The increase of weight has been very remarkable in some of the cases, viz., 19lbs. in 49 days; in one 11lbs., and $6\frac{1}{2}$ lbs. in three weeks in others. It is to be regretted that the increase of weight in all the cases has not been recorded.

Eight out of nine have found the emulsion more easily taken than cod liver oil. Four out of five who observed its effects in promoting the fatty digestion, found that cod liver oil could be taken after the emulsion had been used for some time by those who, before its administration, could not touch the oil.

The answers to question 7 show a difference of opinion as to the efficacy of the emulsion in stages III. and IV., *i.e.*, that of softening and excavation.

In 1867, Dr. H. Dobell published a report of the "Experience of Medical Men who have used Pancreatic Emulsion of Fat."

His schedule only differed from mine in not containing question 6.

His report includes the experience of 33 medical men, on over 2,819 cases. Thirty-one testify to the beneficial results of its administration on digestion, nutrition, and in increasing the weight of the patient. Twenty-nine found that their patients could take the emulsion not only more easily than cod liver oil, but also when they could not take the oil at all. The answers with regard to its effects in the various stages exhibit the same discrepancy that I have before alluded to.

In my own experience of the effects of Pancreatic Emulsion in phthisis, I have found that, after the emulsion had been taken for some time, those patients who before using it had not been able either to take cod liver oil, or even eat fat of any kind, could easily digest oleaginous food. This I consider a very important point in connexion with the value of the emulsion, or rather of pancreatic preparations as remedial agents.

For if, as is most generally—and I think with most reason—believed, the production of tubercle is caused by the non-assimilation of oleaginous food—and since in the treatment of tuberculosis "it is of all things important that fatty matters should be assimilated in large quantities"—it is evident that the agent which

enables the system to assimilate the largest quantity of fatty matters, is most valuable. Now, pancreatic emulsion not only offers to the system a quantity of *solid* fat, more easily assimilated than cod liver oil (hence the greater ease with which it is taken), but we have also evidence to prove that it is highly probable that it restores to the system the power of absorbing and utilizing fats and oils, not only whilst being taken itself, but also after its administration has been discontinued. It acts, therefore, directly as a remedy for tuberculosis, and tends at the same time to restore the healthy functions of the various organs connected with the oleaginous digestion.

The various opinions formed by the different medical men as to the beneficial results of the emulsion, in the stages of softening and excavation, have arisen from the division of the stages of tuberculosis being pathological rather than practical—having more regard to the state of the diseased portion than to the quantity of lung-substance implicated. That this is the case consideration of the natural course of the disease will prove. The tubercle, as is its nature, degenerates; it also excites a certain amount of inflammation in the surrounding lung-substance. Hence, the stage of softening. The softened mass being expectorated, a cavity remains. Now, if few tubercles are deposited in a limited portion of the lungs, the cavity or cavities may remain stationary, or their sides may contract and finally cicatrize, or the softened mass may not be expectorated, but “The more watery parts of the morbid secretion may be absorbed, and the earthy salts it contains may concrete; and the whole be converted into a shrivelled, hard, chalky mass, which is sometimes coughed up; sometimes, in favourable cases, remaining for years in the lungs, an inert and almost harmless body.”^a

But, when the tubercles are numerous, the result is very different, even when softening does not occur, and when vomicæ are not formed. “Their size or effects become incompatible with the further continuance of life. Hectic continues, emaciation increases, the strength declines, and the fatal consummation arrives.”^b

It, therefore, seems that, with regard to the effects of treatment, the quantity of lung-substance implicated, and the stage of the disease, have a constant relation to one another—a sort of inverse proportion. When a large portion of the lungs is affected, the earlier the stage of the disease, the more hopeful the prognosis.

^a Watson's Principles and Practice of Physic, Vol. ii., p. 187, fourth edition.

^b Watson, *op. cit.*, pp. 187 and 212.

When the disease has advanced to the stage of softening or excavation, the smaller the portion of lung involved the better the prospect of recovery. Our most favourable prognosis can be given in that case in which the first stage of consumption attacks a limited portion of lung.

The reputation of a remedy has frequently suffered from expecting too much from it; and when it has failed by itself when it should have been used in combination, or has not succeeded in every case, when it was only suited for some, to restore health, or relieve the sufferer, it has been cast aside, and spoken of as worthless.

Now, what I believe and what I think has been proved of Pancreatic Emulsion is, not that it is a specific, capable of curing pulmonary consumption, but that, in some cases, dependent, among other things, on the stage of the disease and quantity of lung affected, and in combination with other medicines, change of climate, proper hygienic regimen, &c., it is the remedy which has the most beneficial effect.

That Pancreatic Emulsion is superior to cod liver oil has, I think, been proved by the reports, papers, and pamphlets published on the subject, since it has been shown that it is retained in cases where cod liver oil is rejected; that it does good where cod liver oil has proved useless; that it tends to procure the assimilation of fats not pancreatized; that, combined with cod liver oil, "it has proved far superior to the oil alone;" and, finally, it is a solid fat, such as is naturally ingested with foods.

Of cod liver oil Dr. MacNamara has written—"I do not think I am asserting too much for it, when I state that its use has, to some extent, removed tubercular consumption from the list of incurable diseases."^a May it not be said of Pancreatic Emulsion that its use has effected this to a much greater extent?

It is greatly to be regretted that the number of deaths and recoveries, cases relieved, and lives prolonged, out of the number of cases treated by the Emulsion, have not been recorded.

^a Medicines, their Uses and Modes of Administration, p. 567. Sixth Edition.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Pathologie des Tumeurs: Cours Professé a l'Université de Berlin. Par R. VIRCHOW. Traduit de l'Allemand par PAUL ARONSSOHN, Professeur agrégé près la Faculté de Médecine, de Strasbourg, &c. Paris: Germer Baillière. 2 vols.

Pathology of Tumours: Course of Lectures delivered at the University of Berlin. By R. VIRCHOW. Translated from the German by PAUL ARONSSOHN, Professor of the Faculty of Medicine, Strasbourg. Paris: Germer Baillière. 2 vols.

THE translation of this remarkable, indeed now classical, work into French, will place it within the reach of many readers to whom it was inaccessible in the original. It consists of a collection of the lectures delivered by Professor Virchow upon one branch of general pathology, a subject the teaching of which, in his hands, has thrown great lustre upon the University of Berlin.

As the translator justly observes in his preface, we must not expect to find in the pages of the work before us either a simple treatise on pathological histology or a manual of diagnosis; both these points of view are too narrow for the pathologist. The subject, on the contrary, regarded in its widest aspect, owes its chief feature of originality to the doctrine of the author as set forth in his "cellular pathology." Thanks to it it has become possible to classify various morbid products forming tumours, according to their histological and pathogenetic characters. The different species thus constituted are made the object of special study, and become the subject of a series of lectures, each one of which is in truth a monograph.

Microscopic observation has led M. Virchow to his capital discovery in a doctrinal point of view, viz., the structure of connective tissue and its various equivalents. But this he employs not merely as a means of investigation; he makes use of it not only to recognize but to classify morbid products, having recourse likewise to other means of observation.

The second volume of these lectures, which treats of scrofula, tubercle, syphilis, &c., shows how much M. Virchow is a pathologist as well as a microscopist.

Professor Virchow is not one of those who, because his own views are original and novel, would disregard the opinions of persons who have gone before. In his earlier lectures he gives abundant evidence of his willingness to estimate justly the labours of his predecessors; he shows how naturally improved means of observation have modified ideas as well as nomenclature.

To lay before my readers a brief sketch of this modification of ideas, as to the genesis of morbid growths, as well as to introduce to them a nomenclature which, although new, every day gains a surer footing in our schools of medical science, is the object of the writer of this review.

As M. Virchow himself observes, the expressions *hygroma*, *meliceris*, *colloid*, *atheroma*, &c., although long in use, have not become obsolete; they are in point of fact still current. Each such name indicates a fact concerning the tumour to which it is applied. *Hygroma*, because the contents are watery; *meliceris*, because they are thick and honey-like; *colloid*, because resembling glue; *atheroma*, having contents of pultaceous consistence. Yet we do not call every tumour atheromatous which has pultaceous substance contained within it; there are forms of cancer and canceroid the contents of which, at certain periods of their development, become atheromatous, and present a pultaceous aspect; but we should commit a serious error were we to place this form of cancer among atheromata. There is, on the contrary, a well defined group of tumours for which the name atheroma is now reserved, and other tumours having accidentally contents of similar consistence are, nevertheless, to be distinguished from atheroma.

To separate thus, little by little, things like in appearance, but quite different as to their origin and importance, is an operation which presents great difficulties; it likewise embraces long periods in the history of medicine, and upon many points it continues to go on up to the present day. The progress thus slowly but surely made, leads to changes in nomenclature as well as changes in the meaning of terms used by the older writers in one sense, and retained by moderns in a somewhat different one. Hence, it happens, by extended observation and improved means of research, that what were once looked upon as separate entities, are no longer regarded as being so.

Thus, in former times, all tumours having contents of the consistence of glue, were grouped together under the title colloid; but real knowledge of a practical kind was only attained when colloid cancer, colloid enchondroma, colloid tumour of connective tissue, &c., became recognized as distinct affections, having one characteristic (and that not an essential one) in common. Scirrhus has at different epochs embraced the idea of things so different, from simple induration to veritable cancer, that unquestionable progress has been made in limiting the term to one determinate form of cancer.

Formerly scirrhus and colloid were each regarded as a particular entity; in the present day they are adjectives, and we have a scirrhous cancer, a colloid cancer, or a colloid lipoma, &c.

A considerable advance was made when the analogies were recognized which certain tumours have with certain portions of the body. When it was observed that one sort of tumour was composed of fatty tissue, and this was named a fatty tumour, there was at once established a relation between the normal fat tissue of the body and the new pathological fatty formation. When, again, the horny formations on the surface of the skin were recognized as "reproductions," or imitations of the horny layer of epidermic tissue from which they sprung, the same relationship between the normal and the pathological was established. Thus progress was made, step by step, until, towards the close of the last century, Abernethy advanced the doctrine that certain tumours were identical with certain portions of the body. He spoke of a sarcoma, analogous to the pancreas or mammary gland, thus comparing compound forms of tumour with compound portions of the body, that is, parts made up of what even he regarded as distinct elements.

But the basis for any really satisfactory classification of tumours was still wanting. The knowledge of the tissues of the human body, and their development (histology and embryology), was still quite in its infancy; the tissues of Bichat were not sufficient to serve as a basis for the study of histology in the true sense; the embryology of Haller and Hunter had as yet thrown but little light on histogenesis.

Up to this period, in fact, writers had contented themselves by the most ordinary comparisons, looking only to the most obvious characteristics which were found to exist in common between tumours and some parts of the body; they were content to divide tumours into those which were quite hard, and those which were completely or almost liquid; as to the intermediate forms, they

were thrown together into the group known as *sarcoma*, a term with no precise meaning, and only signifying that the tumour had some analogy with what was understood to be flesh. If flesh was supposed to mean that which forms the soft parts of the body, the field of comparison was large indeed, but did little for classification.

Bichat left behind him but few lectures on general pathological anatomy. The genius of this remarkable man, however, had penetrated more deeply than that of his predecessors. In the few pages which he left are found the principles of the doctrine which prevailed for half a century after. It was Bichat who foreshadowed the division of the morbid growths met with in tumours into the "*formations nouvelles accidentelles*," and the "*formations sui generis*." The former consisting of growths similar in structure to certain normal constituents of the body; the latter being something new, a structure not known to exist as a normal tissue, something of the nature of an epiphyte or parasite, developing itself upon the body, yet having an existence of its own and living independently of the body, to which it adhered. The recognition of fatty, osseous, cartilaginous tumour on the one hand, and of tumours of a parasitic nature (containing cysticerci, echinococci, &c., which were really known to be living animals), on the other was not only an advance, but it gave to the ideas of Bichat that kind of charm which led his followers to generalize on the subject too extensively, in each direction going beyond what was warranted by scientific observation. Thus, after Laennec designated a certain number of tumours under the name *encephaloid*, Maunoir jumped to the conclusion that medullary sarcoma was an accumulation of nervous substance; while on the other side cancer was by many regarded as an accumulation of minute parasitic growths, or entozoa, of microscopic character.

Among the pupils and followers of Bichat were the Dupuytren, the Laennecs, the Andral, the Cruveilhiers, who, working in the track of their master, greatly extended the circle of knowledge. One of these, Lobstein, the celebrated clinical teacher and pathologist, of Strasbourg, had the good fortune, from the situation of the school in which he was placed, to act as a sort of bond of union between the doctrines of France and of Germany. He designated with precision the two great classes of tumours, facilitating their comprehension, and, by a new nomenclature, giving a neat and definite form to the idea of Bichat. Thus the *formations nouvelles accidentelles* became *homeoplastic* tumours, that is to say, products

identical or analogous to the normal constituents of the body, while the supposed parasitic production, or *productions sui generis*, were transformed into *heteroplastic* tumours, that is to say, special products differing from those contained in the human body in a state of health.

Improved methods of chemical and microscopical research, not unnaturally, awakened considerable expectations among pathological inquirers. It was expected that chemistry would discover and isolate certain substances peculiar to various morbid growths. It was anticipated with some confidence that a special cancerous substance, a carcinomatine or some such thing, was capable of being obtained. Microscopic observation was called upon to furnish special morphological elements which were to serve as certain diagnostic signs of cancerous and other tumours. Neither the one nor the other of these expectations have been realized. The most distinguished chemists, as Thenard, Vauquelin, Lassaigne, and others, failed to discover a specific substance peculiar to tumours, and microscopists have been unjustly blamed for describing specific morphological elements, cellules, &c., very good for purposes of classification, but not specific in the true sense. For a time it is true it was the fashion to believe that corpuscles presenting a caudate prolongation (fusiform or caudate cells), were the particular elements specifically characteristic of cancerous tumours. Yet the microscopist may be sought for in vain who has advanced this assertion.

This was, in truth, a dogma which entered the domain of science from without, and which having, by a sort of general consent of medical men, obtained a footing it is difficult to get rid of.

The doctrine of specific elements is still, however, tolerably widely spread; its principal founder was Lebert, a pupil of Schönlein. According to his view particular properties of structure are to be recognized in different tumours as they are in different plants and animals. It is after all but a modification of the idea of the parasitic nature of tumours such as Lobstein named *heterologous*; according to it the leaf of an oak does not differ more from that of a willow than should the structure of one such tumour differ from another.

Many adepts of the Parisian school still adhere to this doctrine of specific elements, and in England it has found not a few partisans. Virchow has ever been the avowed adversary of this notion, and as his reasons for disbelieving it must be understood, as being in truth

the ground-work upon which the entire of these lectures are constructed, we give them in his own words:—

“In Germany the doctrine of specific elements has from the first made few proselytes, and now it is entirely abandoned. From the commencement of my career I have been compelled to combat this error, and I believe that at the present moment we are in a position to demonstrate, in every direction, that there do not exist in tumours true specific elements which have no analogy with the normal tissues. It is enough for that to remember that the tumour, howsoever parasitic it may appear to be, *is always a part of the body from which it springs*, and that it is not developed in an isolated manner at the expense of some juice, at some one place in the body, by the inherent force of this productive juice. To admit such a mode of development, *de novo*, was possible at a time when it was also believed that entozoa were spontaneously developed in the body at the expense of a liquid or an excretion, by equivocal generation, when no idea had been as yet formed as to how a cysticercus arrived in the abdomen, and there was able to develop itself and grow. There was no other opinion which medical men could then form save that entozoa sprung from animal substances, either from the tissues themselves or from the intestinal mucus (*saburra*). In the present day when it is known that entozoa always penetrate into the body from without, by a way, often it is true, extraordinary, yet always natural, this analogy can no longer be invoked. This is still more evident since we have come to know that in a free exudation there is no new element produced; that, furthermore, the elements of the body itself have a legitimate origin from father and mother (or, to speak more correctly, from father or from mother, for it is a case of parthenogenesis), so that we must completely abandon the idea that a tumour can develop itself in the body as an independent being. *It is a part of the body*; it is not merely contiguous to it, but proceeds from it and is subject to its laws. *The laws of the body govern also the tumour*. This is the reason why it is not an object of natural history that one can regard as foreign from the elements of the body; it is on the contrary to be looked upon as embraced within its limits. . . . Hair may make its appearance and grow at a place where we do not expect to meet with hair. But no one will fancy or believe that feathers will grow in the human body. As a matter of fact there are tumours in man which contain hair, and in cutting up geese tumours are sometimes found containing feathers. But if ever a man engendered a tumour with feathers, or a goose one with hair, this would be a production, *sui generis*, because the thing produced would deviate from the type inherent to the individual.

“*The type which in general governs the development and formation of the organism, governs equally the development and formation of its tumours.*

“There does not exist a new, different, independent type.

“What is established by logic in this manner, results also from the direct observation of tumours themselves. This is why I deny that there is any heterology in the sense in which it has been maintained since Bichat's time, or such as was supposed even before then, that is to say, that a tumour could develop itself and exist in the body in accordance with some quite new plan, some new law. I go further, each species of tumour, whatever it may be, answers in its important parts to the elements of the body, the type of which is known, and the capital difference amongst divers tumours resides in this, that tissues normal in themselves appear under the form of a tumour, sometimes in regions where this tissue normally exists, sometimes in places where it does not exist in the normal state of things. In the first case I speak of it as *homology*, in the second as *heterology*.

“Wherever a normal tissue appears at a point which already contains some similar tissue, then as a consequence the new tissue is identical with the old, so that the type of the new production answers to the type of the pre-existing tissue; in this case the new tissue, the tumour, is homologous; when, on the contrary, the new type does not correspond with the old one, when it deviates from the pre-existing type, or that which is the original and normal one of the region, then there is heterology. But this latter has likewise its analogue in the body, only in another part of the body from that in which the tumour is situated.

“We cannot, in my opinion, distinguish tumours according to the tissues, in such a fashion that tumours containing certain tissues are to be regarded as homeoplastic, whilst those containing certain others are to be set down as heteroplastic; quite the contrary, *the same kind of tumour may be, under certain circumstances, homologous, and under other circumstances, heterologous*. The same sort of tumour may at one time appear at a point where it is merely the expression of an excessive development of the tissue normally existing at this point, at another time at a place where this tissue is not in existence, and where its development is abnormal and strictly pathological. Let us take an example, a tumour may be formed of cartilage. The cartilaginous tumour is homologous, not because it is formed of cartilage but only if it springs from cartilage, if in this place there is cartilage already. Thus, a costal cartilage may be the point of origin of an enormous cartilaginous tumour; this is homology. But it is also possible for a cartilaginous tumour to be developed in the testis, which contains no cartilage, where this tissue should not be met with; here the same product constitutes an heterology.”

Homology and heterology have, therefore, for Virchow a meaning different from that given by his predecessors; in short, according to his doctrine, in homology, the neoplasm must be formed after the type of structure of that tissue from which it takes its

origin, or, in other words, of the mother tissue (*matrix*), from which it springs; on the other hand there is heterology when the new product differs from the type of the matrix from which it proceeds.

This idea pervades his whole work, and he conceives that this mode of viewing the subject has smoothed away many difficulties which came in the way of those who had placed before themselves the object of demonstrating, morphologically, the heterology of tumours of malignant character.

In his fifth lecture Virchow sets forth his views as to the history of the development of tumours. His ideas upon this subject are in accordance with those advanced in his "cellular pathology;" they are at once simple and comprehensive. According to Virchow there are five acts in the drama which represents the life history of a tumour.

1st. *The stage of irritation.*—The initial influence which sets a-going the formation of a tumour may be external or internal; it may be the result of mechanical or other external cause; it may be the result of a "*dyscrasia*," that is to say, of the presence in the blood of some substance which exercises on the various parts of the body an inciting action, or, possibly, these two influences may be at work together. The irritation of the clay pipe does not originate an epithelioma of the lip unless the necessary dyscrasia exists. If no such condition exists, and the irritating cause is not intense, it will only give rise to the simple consequences of irritation, such as we know by the names *inflammation*, *chronic inflammation*, *hypertrophy*, &c. A special character and a certain amount of intensity is necessary to produce specific forms. Thus, observation teaches us that the malignant forms of tumours are, in the great majority of cases, developed in those organs exposed to irritating external causes.

The irritation varies in its nature according as it is produced by a peculiar chemical substance, an "*acrimony*," such as we suppose to exist in infectious maladies, or dyscrasic states, or according as it is related to a mechanical cause. The direction which the development of the new tissue takes, in consequence of this irritation, varies in its turn according to the tissues upon which the irritation acts, differing remarkably in some tissues from others, and according as the irritant substance exercises an action of a special chemical nature which, acting like the spermatozoa upon the ovum, communicate to the tissue irritated qualities altogether special.

2nd stage. The second stage is that of granulation; it is the stage

of tumour-growth in which, by segmentation of the nuclei and multiplication of the cellules, the tissue arrives at a condition named by Virchow the "state of granulation," because it quite resembles what we see to take place on the surface of wounds. The tissue in this state is said to be *indifferent*, that is to say, the formative cellules as yet give no indication of the kind of structure ultimately to be formed from them. In this stage of growth the structure is strictly comparable to the embryonic condition which supervenes in the ovum in the early period following fecundation, when there is developed a mass of cellules, from which different tissues are ultimately destined to be evolved. At this period the cells, from which the brain is eventually to proceed, have the same appearance as those which are destined to give origin to muscle, connective tissue, or epithelium. As regards tumours, it is the same in the stage of granulation; it is the stage in which *differentiation* has not yet commenced, in which there exist little round cells, having a nucleus, and sometimes a nucleolus, and for the most part a finely granular substance. It is true these *formative cells* have been long known; Valentin and Müller described them more than twenty years ago; they regarded them, however, as being developed by equivocal generation in the exsuded masses of the so-called blastema, as being in fact new productions not related to pre-existing formations. Virchow, on the other hand, teaches that these new elements proceed from the pre-existing elements of the part; *the old elements are the matrices for their development.*

Up to the period when these formative cells or "*cells of granulation*" are formed, and even during the period characterized by their presence, it is not possible to recognize what their ultimate destination may be. A cancer in this stage resembles a tubercle; a gummy syphilitic tumour of the periosteum does not differ from a more advanced exostosis. It does not follow that the cellules are absolutely alike, but they appear to us to be so; they do not present any distinctive features by which, with our present means of research, we can recognize special differences between them; it is just the same as with the cellules of the embryo, concerning which we must admit that however impossible it may be to distinguish characteristic differences between them, yet they contain within themselves something special, which is capable of determining their ultimate development, some into nervous tissue, some into muscle, epithelium, connective tissue, and so forth.

3rd stage. Next after this period commences the third stage, or that of *differentiation*; during this stage the distinctive features of the different tissues begin to show themselves: not only may a tumour be composed of a single tissue, but different parts of the same tumour may be composed of different tissues; accordingly we are now able to divide tumours into two great classes.

In one of these classes, simple tissues are developed, so that the tumour presents in all its parts a certain homogenousness of structure. Thus there are tumours which produce exclusively epithelial elements, or in which the granulation cells give rise only to connective tissue. Such tumours Virchow names "*histioid*." They are simple in their structure, and the structure of their elements shows them to be composed of one physiological tissue.

In the other class, on the other hand, there may result from these same formative elements, or "granulation cells" products differing in the direction which their development is about to take; for example, one group of cells may develop into connective tissue, another into epithelium. A tumour may thus be formed of an areolar net-work of connective tissue circumscribing cavities filled with epithelium. Vessels may be developed in the connective tissue, and thus a complex structure gradually grows up, no longer corresponding in structure to one tissue, but resembling rather the structure of an organ. Such pathological organs Virchow names "*organoid tumours*;" from the diversity of their structure they present a close analogy to certain physiological organs, especially to glands—to ordinary physiological glands. But there are tumours even more complex in their organization, presenting analogies not merely to one organ but to a system of organs. Thus, for instance, a tumour may be identical with the external skin not only as regards its connective tissue and its epiderm, but it may likewise contain sudoriparous and sebaceous glands—even hairs, and all the other accessories of skin. Such a tumour is not a simple organ, for the sudoriparous glands which are found in it are organs; the tumour itself forms in fact a perfectly developed system. Howsoever extraordinary such productions may appear, and therefore regarded as freaks of nature (*lusus naturæ*), still they are not more difficult to conceive than the simpler forms of histioid and organoid tumours. Virchow designates them under the name of *teratoid* tumours, looking upon them as anomalies of organizations, aberrations somewhat analogous to monstrosities.

4th stage. When the tumour has arrived at that stage of growth

whereat there are produced determinate well characterized tissues, it is like a plant which has arrived at the stage of blossoming or an animal at maturity. When, therefore, the different elements composing a tumour have reached a certain typical degree, the highest point of their perfection, Virchow says that the fourth stage has been attained—the *stage of blooming or maturity*. The duration of this stage must obviously be very various, inasmuch as some structures have a character eminently transitory, and possess a duration of existence, or adult life, as we may call it, relatively short; whilst others have a persistent character, durable, and indeed such that they may be considered as permanent elements of the entire organism. Thus the elements of tubercle die early; those of cancer last longer; so that we find the complaint to be in some sort stationary for a certain time—a canceroid usually lasts for a still longer time; its elements attain to a much more advanced development; they are much more characteristic and more durable. But all three end by undergoing destruction. In fact, while each tumour is primarily the result of a productive action on the part of the organism—of a veritable active proliferation—each no less bears within itself the tendency to destruction, in that its elements are not durable but of necessity liable to decay and transient. “For everything which is produced *de novo* undergoes destruction, without having any durability, or stability, or persistent value for the body.”

5th stage. All tumours, therefore, which contain decaying elements, from the moment that they have reached the stage of maturity, commence to furnish a series of retrograde passive products; they enter upon the last stage of their existence—that of *retrogressive metamorphosis*. The retrogressive metamorphosis of tumours are various; they are, in fact, what are termed the modes of termination, and among them we find fatty metamorphosis, ramollissement, calcification, &c.

Thus it is that Virchow, with a master hand, sketches out the life history of proliferating tumours, following their elements from the moment of the first *irritation*, through the period of *indifferent granulation*, into the channels of their further development (*differentiation*), up to the point where their *maturity* is attained, and finally observing the modes of termination which form the ultimate destiny of each.

In laying down a foundation upon which to base a systematic division of tumours, Virchow establishes four groups:—1st, those

developed at the expense of the elements of the blood—tumours by extravasation and exsudation; 2nd, those developed at the expense of secretory substances—tumours by dilatation or retention; 3rd, those developed by way of proliferation of tissue, excrescences, pseudoplasms, proliferating tumours—in short, those neoplastic growths, the life-history of which has been already sketched out, and the subdivision of which constitute the histioid, organoid, and systematoid or teratoid tumours, spoken of above; and 4th, those complex tumours into the formation of which two or more of the foregoing are found to enter. From such a systematic division it will be observed that there are excluded:—simple inflammatory swellings, kysts devoid of proliferating or reproductive properties, and those connected with entozoic worms. The term tumour, therefore, as used by Virchow, does not exactly correspond with the meaning of this word as used by the older writers, who also applied it to inflammatory and hypertrophic swellings. As regards cystic tumours likewise, it must be borne in mind that the term kyst, as used in the present day, has also a signification somewhat different from that formerly assigned to it. There are a series of products that we call *cystic* or *cystoid*, that no one would now-a-days think of reckoning among tumours. When, for example, there has existed in the brain a blood clot, and when, at a later period, there is found at this point a cavity containing fluid, enclosed within a membranous layer of connective tissue, we speak of this as an apoplectic kyst, but no one thinks of calling this kyst a tumour, and that simply because it represents a vacant space—a void, in fact, in the pre-existing cerebral substance, which has not been replaced by any special organization. We cannot regard as tumours those kysts, which are in truth nothing else than sacs or cavities, simply the result of loss of substance; a tumour must always awaken the idea of something superadded—of *something productive*.

The kyst appertaining to the vesicular worms found in the human body have always a double membrane—an external one, formed of connective tissue, more or less rich in vessels, and arising from irritative action; the other, internal, is the animal membrane, properly so called. The swellings formed in the human body by such kysts are produced either by the cysticercus of the cellular tissue or by the echinococcus *hominis*. When the worm sac attains a great size, then we may conclude that it is an echinococcus; when small, we may surmise that it is probably a

cysticercus. The size of the vesicle of the cysticercus is at most not bigger than a cherry—often no bigger than a cherry stone. The kysts of the echinococcus, on the other hand, become much more voluminous; they are generally as large as a nut when first observed, and may grow to be the size of one's fist. Up to the present time the existence of a third species of vesicular worm in the human body has not been proved, although it is not impossible that the so-called hydatids of the pia mater may turn out to be entozoic products either coenurus or some allied species.* These cystic growths, however, do not enter into the category of tumours as defined by Virchow; they are, at least, a class quite apart, having nothing in common with morbid growths composed of fluids or tissues, either identical with or modifications of, those normally existing in the body.

According to Jules Vogel, and almost all the modern French microscopists, the terms homology and heterology retain their old signification; they regard homology as the reproduction of known parts of the body, heterology as the development of new and special products foreign from the structure of the body. Thus it comes about that among these authors homology is a synonyme for benignity and heterology for malignancy. As we already know, this doctrine is entirely at variance with the view of Virchow, who does not recognize any tumour as being developed from elements altogether foreign from the structures of the body, and who has demonstrated that that element, apparently the most foreign of all those met with in tumours, the cancer cell, really corresponds with a normal formation—the epithelial formation.

Our readers must therefore bear in mind that, according to Virchow's conception of homology and heterology, that tumour is homologous which corresponds in the type of its development with the type of its parent-tissue, with the type of its matrix; and that is heterologous which deviates from the type of the matrix. A simple histioid tumour, in which but one kind of tissue exists, even although identical with some well-known tissue of the body, may be heterologous if it occupies a place where this tissue does not normally exist; an enchondroma springing from the cartilage of a rib is homologous; an enchondroma originating in the testis is heterologous. It is therefore obvious that according to the nomenclature of Virchow the benign or the malignant nature of a tumour is in no way expressed by its being homologous or

* *Enkysted trichine spirales* are always microscopic.

heterologous. As his scheme for the division of tumours in general rests upon their development, he cannot venture to assert, without the most ample inquiry, that a tumour is of a benign or malignant nature according as it enters into one category or another. He can, however, assert in general terms that when a tumour contains a tissue different from that which has preceded it it is heterologous and suspicious. Homologous tumours, on the other hand, whatsoever importance may be attributed to their situation, their bulk, their correlations, are not the less of themselves inoffensive productions, and may, as a rule, be regarded as benign. If, then, we except the heterologous forms, we have the certain category of benign forms into which enter in general those due to retention and exsudation. All the rest embrace forms which are suspicious.

Here, again, let me quote the words of the author:—

“Every heterologous tumour is not of a malignant nature. There are a great many such tumours borne without any ill consequences, and whose properties are quite similar to those of which the nature is benign. Malignancy follows a certain scale among heterologous tumours, from species to species; and we are able to show how it is manifested more and more strongly—for the most part following two directions. In the first place, heterology is distinguished according to the degree which it attains. The tissues of connective substance have a much nearer relationship existing among themselves than they have with epithelial tissues or with the specific animal tissues. When, therefore, a cartilaginous or bony tumour is developed in connective tissue, or even a mucous tumour in adipose tissue, that is not nearly so heterologous as when an epidermoid tumour is formed in connective tissue, or a tumour of cylindrical epithelium in a lymphatic gland. A cartilaginous tumour which is developed in connective tissue or in the tissue of bone, is indeed heterologous, but it is not so to the same degree as an epithelial tumour or a muscular tumour would be in the same place. But a still more important circumstance is this, that tumours engender certain liquid substances which we speak of under the name of juice. This is the humour or juice of the tumour of which much has been said.

“This parenchymatous juice is sometimes related to the cells, sometimes to the intercellular substance; and accordingly it appears under the form of a fluid either intracellular or intercellular, contained in the cells or interposed among them in a liquid state like serosity. Whenever a tumour contains much juice, it gives evidence of more troublesome properties, and it possesses to a high degree the property of infection. A dry tumour of the epidermoid kind is by far less dangerous than a moist one; a soft cancer is much more to be dreaded than a hard one. . . .

"The more a tumour is poor in vessels the less it will extend its infecting action beyond the neighbouring parts; but the more it is rich in blood-vessels and lymphatics, the more it is traversed by the blood and lymph; the more the parenchymatous juices are in contact with the blood so much the more is the infection likely to become general.

"I give thus an interpretation of facts, but it is in accord with observation. The degree of contagiousness of tumours increases in proportion as they become more rich in vessels, and that alongside the vessels they contain an abundance of liquid materials. Every soft succulent tumour is suspicious, and that just in proportion as it contains many vessels and cells. The more the juice is intercellular and in contact with the vascular stroma of connective tissue, the more the malignant properties which are manifested by an ever new excitation to the progressive production of the tumour.

"I ought indeed to speak more at length as to the nature of these juices, but in truth I do not know what to say upon the subject. The results which chemists have arrived at on this subject have no kind of value. Here the field is open to inquiring and progressive spirits; and I hope that hereafter researches will be undertaken in this direction, and that they may be crowned with success."

Following the general scheme for the classification of tumours already sketched out, the author proceeds, in the seventh and subsequent lectures, to the special consideration of the species of tumours to be found in each category.

1st. Blood tumours, or hematomata, to which belong hematocetes, fibrinous polypi, dissecting aneurisms.

2nd. Water tumours, or hygromata, and tumours by retention, to which belong hydroceles, bursal tumours, ganglia, follicular cysts, and tumours such as runula, spermatocoele, galactocoele, caused by retention in the larger canals of glands.

3rd. Proliferating tumours, to which belong tumours of connective substance or fibroma, fatty tumour or lipoma, mucous tumour or myxoma, cartilaginous tumour or enchondroma, bony tumour or osteoma, sabulous, melanotic, and sarcomatous tumours, and those granulation tumours or granuloma of which perhaps the syphilitic gummy tumour is the best example.

At this point the second of the volumes before us terminates, leaving still a good deal to be treated of in that part of the work still to come.

As I have already said, each lecture is, in point of fact, a monograph on the species of tumour of which it treats, and it would not be possible, however desirable it might be to do so,

to give my readers, in the space allotted to a review, anything like even a brief abstract of each. Some idea, however, of the general scope of the entire work may be formed by the consideration of one lecture; let us take lecture thirteen—that on Fibroma.

In this lecture the author commences the study of proliferating tumours—that is, tumours composed of vegetations in the true sense of the word. Such tumours differ from blood tumours and tumours by retention, in that they consist in the development of a new tissue; this is their essential characteristic, all the subsequent changes which they may undergo giving rise perhaps to particular exsudations, hemorrhages, or retentions, possibly causing cyst-formations in their substance, are secondary in comparison with the important fact that they are new formations—neoplasms proceeding immediately from pre-existing tissues serving as their matrices. Within this great group of neoplastic tumours we have to do with growths every one of which carries in itself an active, productive, irritative character, and within which are embraced the most simple inflammatory forms, as well as those going to the extremes of heterology and malignancy. This (the thirteenth) lecture is devoted to the consideration of that family of neoplastic tumours which, as its *chief element*, is composed of one of the tissues of connective substance, viz., cellular tissue, or, as it is now-a-days usually named, connective tissue. Without defending its etymology, Virchow adopts the name *fibroma* (because he knows no better) for this class—a name which is synonymous with tumour of cellular tissue, connective tissue tumour, or fibrous tumour.

It is true that up to a recent period there have been joined together, under this head, a great mass of tumours, which differ so little in their external appearance that without an exact knowledge of the locality in which they spring it was hardly possible by the naked eye to distinguish between them. Thus, the so-called “fibrous tumour,” which to the unaided eye resembles a *fibroma*, when submitted to a more searching examination is found to be a complex production, richly provided with muscular elements, and hence not capable of being admitted into this class. The nodosities called *neuromata* which are produced upon the nerves, and which heretofore have been described as fibrous tumours, are likewise complex structures, and ought to be rejected from this category.

If, then, we also exclude those tumours which, commencing as simple kysts or by retention or exsudation, really belong to a totally different class, although the later part of their existence

may be accompanied by a production of connective tissue thickening their walls and developed around them, it is obvious that the group to which the name fibroma is rightly applied is comparatively restricted, and scientific precision is given to a term hitherto applied very indefinitely.

When we seek out the ordinary seat of the development of these tumours we find that they are usually formed on the condensed and resisting membranous expansions of connective tissue, especially those of the skin and aponeuroses; then the periosteum, the mucous, serous and synovial membranes. When quite superficial and engaging the epidermic layer of the skin, these tumours may gradually acquire an epithelial clothing of such a thickness that they pass for epidermoid or epithelial tumours rather than tumours of connective tissue.

Productions resulting from elephantiasis, assuming the form of tumours upon the outer skin, offer good examples of fibroma; no doubt the alterations usually arising from elephantiasis extend themselves uniformly over large surfaces, so that the ordinary character of a true tumour entirely disappears; yet this is not always so, and whether in the form of tumours or diffused elephantiasis, the disease consists of an excessive development of a connective tissue. There are many internal organs in which the same pathological condition exists, as in elephantiasis, so-called chronic pneumonia (cirrhosis of the lung of Corrigan); interstitial hepatitis, with hypertrophy of Glisson's capsule (cirrhosis of the liver); analogous conditions of the testis, mammary gland, &c., are equally accompanied by a progressive formation of connective tissue and induration of the parts. In the lung and liver this development of connective tissue is too uniform to create what could be called a tumour, but in an external organ as the breast or testis, this tendency to form a tumour often shows itself.

Fibroma appears under three principal forms: first, the diffused variety—that of elephantiasis, or, as we might say, cirrhosis; secondly, the circumscribed variety, giving rise to nodosities and what are known in dermatology as *tubercular* tumours; and thirdly, the warty variety, assuming the form of papillary excrescences; in this last kind the epidermic productions give a peculiar character and make a division between the different kinds of warts; a tumour of connective tissue with a warty epithelial covering is obviously distinct from a warty growth essentially composed of epithelium.

Many pages of this (the thirteenth) lecture are devoted to the investigation of the pathology of the different forms of elephantiasis, constituting, in fact, a complete and exhaustive treatise upon the subject. The sporadic, congenital, and endemic forms are each discussed; the differences between this affection and leprosy, chronic erysipelas, phlegmasia dolens, &c., are entered into. Then the less diffused varieties and those assuming the form of distinct tumours are treated of. Molluscum (molluscoid elephantiasis), benign induration or hard elephantiasis, affecting the mammary gland, ovaries, kidneys; and papillary or warty fibroma, are each considered at great length.

The concluding pages of the lecture are devoted to the *tuberos* forms of fibroma; that is to say, those which appear under the form of what have been called tubercles—a term which Virchow very rightly wishes to avoid as leading to confusion between these tumours and true tubercle, to which they have nothing to say.

The dermatologist, it is true, uses the name tubercle to indicate these tuberosities or nodosities, which sometimes attain a considerable size, but which have no pathological resemblance to the tubercle of true tuberculosis. The one—the tuberos fibroma of Virchow—attains its summum of development by the production of connective tissue. The other, on the contrary, reaches its culminating point in the development of lymphoid cells; consequently, the capital difference between them lies in this, that the one represents an excrescence of a permanent character, the other a product of a transitory nature.

As regards some examples of tuberos fibroma—and these, indeed, the gravest forms—it is often difficult to say whether they should be looked upon as springing from the aponeurosis or from the periosteum. This observation especially applies to those met with on the anterior surface of the cerebral and spinal vertebræ. Sometimes it even cannot be decided whether the bone has not been first affected, their destruction is already found to be so far advanced. Cruveilhier mentions a case in which the pediculated tumour sprung from the second dorsal vertebra. Virchow has observed one closely analogous. The ordinary seat of these tumours is the region of the neck or at the base of the cranium; and we see appearing an excrescence either as a retro-pharyngeal polypus, or as a latent tumour in the neck, or perhaps in the orbital, temporal, or speno-palatine fossa.

The discussions which have taken place some years ago at the

Société de Chirurgie of Paris about these polypi so difficult to manage by operative interference, as well as the cases published since then, have thrown much light on their pathological anatomy. Robert maintained that these tumours sprung from the *foramen lacerum*; others, Nélaton among the number, were positive that these tumours sometimes took root from the basilar process, or even from the atlas and superior cervical vertebræ, whence they projected into the pharynx and posterior nares, &c. Lebert has figured in his great atlas several cases then under discussion, and examination proved that the bones of the cranium were in part entirely destroyed.

Usually each lecture concludes with a sketch of the ultimate history of each form of tumour—that is, a discussion of the tendency which that family has to retrocession, induration, cretification, ulceration, abscess, ramollissement, &c. I have already, however, gone as far as the space allotted to a review permits in this imperfect notice of Professor Virchow's work. Let me say, in conclusion, that I can hardly doubt that, when completed, this work will form one of the classical pathological treatises of the present century.

Those who know the active part which the learned professor takes in the political movements of his native land will be amazed at his untiring energy. His admiring friends, however, will be reassured by the words of the preface:—

“I have succeeded in fulfilling the task which I proposed to myself in the lectures delivered from November to March. The date placed at the head of the different lectures will show to those interested that I fulfilled my duties as professor even on the same days when important debates took place in the Chamber of Deputies. I am able to add, in order to tranquillize my friends, that the silent toil of the man of science, often so little thought of, taxes the strength and powers of application by far more than the noisy and consequently less slighted activity of the man of politics, which often seems to me a positive relaxation.”

RECENT WORKS ON CHEMISTRY.

1. *Notes on the Metals : being a Second Series of Chemical Notes for the Lecture Room.* By THOMAS WOOD, Ph.D. London: Longmans, Green, & Co. 1868. 8vo, pp. 180.
2. *The Elements of Heat and of Non-Metallic Chemistry.* By FREDERICK GUTHRIE, B.A., Ph.D. London: Van Voorst. 1868. 8vo, pp. 210.

3. *A History of Chemical Philosophy from the Age of Lavoisier to the present Time.* By A. WURTZ; translated from the French by H. WATTS. London: Macmillan & Co. 1869. Large 8vo, pp. 220.
4. *Elements of Chemistry.* By WILLIAM ALLEN MILLER, M.D. Part III., Organic Chemistry. Fourth Edition. London: Longmans & Co. 1869. Large 8vo, pp. 976.
5. *Exercises in Practical Chemistry.* By A. G. VERNON HARCOURT, M.A., and H. G. MADAN, M.A. Oxford: Clarendon Press. 1868. 8vo, pp. 335.
6. *Chemistry: General, Medical, and Pharmaceutical.* By JOHN ATTFIELD, Ph.D., F.C.S. London: Van Voorst. 1869. 8vo, pp. 624.

THE remarkable development which chemical science has undergone within the last dozen years has reacted strongly upon the literature of that branch of knowledge. In our student days—happily not very remote—our choice of chemical text books was limited to less than half-a-dozen standard works; now so great is the number of chemical treatises that it has become difficult to make a selection. The large number of recent works on chemistry clearly proves that this science is very actively studied, and that the number of its students is rapidly increasing. Indeed the science is now undergoing a revolution greater than any which has taken place in it since the time of Lavoisier; and hence the works which three or four years ago were faithful exponents of the condition of chemical science are now nearly, in some respects, wholly, obsolete. Many of the leading theories, which have been accepted for the last fifty or sixty years, have been discarded quite recently, and the facts of the science are now explained by views and hypotheses, which four or five years since were hardly even referred to in the ordinary treatises on chemistry. The present transitional state of chemical science prevents any work more than a year or two old from being of much use to the student, and probably constitutes the motive, as it certainly is a fair excuse, for the recent appearance of so many elementary works on this subject. In a late number of this journal we reviewed no fewer than seven chemical works, and we have now before us six others which have recently issued from the press. In all of these works the new nomenclature and notation are

employed, and the most modern views relative to the molecular constitution of matter are given. Henceforth we may expect that the views of Gerhardt and Laurent—long opposed by the great majority of chemists, and especially by their own countrymen—will be universally adopted; and we may soon expect to see whole libraries of chemical works transferred to the waste paper merchant's care, to be by him transmitted to posterity as snuff paper.

In order thoroughly to understand the nature of the changes recently made in chemical notation and nomenclature, one must devote more time to the study than most medical men in practice can spare for such a purpose. To those practitioners who "took out their chemistry" from five to twenty years ago, such works as those now before us must, we fear, remain as sealed books; but we would strongly urge the student of medicine and the recently graduated practitioners to make themselves acquainted with the new theories of chemistry, for we may expect soon to see them introduced into the purely medical works and journals.

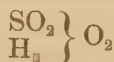
In this notice we do not propose to describe at any length the remarkable changes in theoretical chemistry which have recently taken place, but we shall give a few examples of them in order to show their great extent. The atomic weights of many of the elements have been doubled—thus, that of oxygen is now 16, of carbon 12, of iron 56. Several reasons are assigned for this change; for example, that in the immense majority of cases where such elements are in combination, they are present in the proportions expressed by their newly assigned atomic weights; 8 was the old atomic weight, or equivalent of oxygen, but in 99 per cent. of the compounds into which that element enters, its minimum relative proportion is 16. It is found, too, that the alterations made in the atomic weights of the elements allow of a perfect uniformity in the combining volumes of the simple substances. Equal volumes of elementary bodies contain equal numbers of atoms; hence it follows that however various may be the weights of the different atoms of matter, they all have exactly the same volume.

The old arrangement into binary and quaternary salts has been exploded, and these compounds are now assumed to have the same constitution, whether they contain two atoms as in chloride of sodium, or several atoms as in the case of potassic sulphate. The term acid includes a great number of bodies very unlike in their properties, to such sour, or acid compounds as oil of vitriol and vinegar. All acids are defined by Frankland to be compounds containing

one or more atoms of hydrogen, which become displaced by a metal when the latter is presented to the compound in the form of a hydrate. If we employ the new nomenclature and notation, we should express the reaction which takes place by the admixture of nitric acid and sodic hydrate (caustic soda) thus:—



In this reaction the sodium of the sodic hydrate replaces the hydrogen of the nitric acid; the latter is therefore said to be mona-basic, because its hydrogen replaces only one atom of metal. An acid—oxalic for example—the hydrogen of which replaces two atoms, is termed dibasic; and one which contains sufficient hydrogen to replace three atoms is said to be tribasic. The elementary bodies have different degrees of power in replacing each other in combination, and this has led to their being arranged in groups—monads, dyads, triads, tetrads, &c. The atom of a dyad is equal in equivalent value to two atoms of a monad. The names of a great number of bodies have been changed, thus sulphate of iron is now generally termed ferrous sulphate; persulphate of iron, ferric sulphate; iodide of copper, cuprous iodide; nitrate of lime, calcic nitrate. Sulphuric acid, which formerly was written SO_3HO , is now represented by the formula SO_4H_2 ; or (by Frankland) SO_2Ho_2 , Ho being the symbol of a hypothetical compound radicle which he terms hydroxyle. Miller writes the formula of sulphuric acid as follows:—



For these changes, which are but a few examples of the multitude recently made in theoretical chemistry, very sound reasons are given; and when we find such men as Williamson, Miller, Frankland, Odling, Stokes, Clerk, Hofmann, and Kekule adopting them, we may safely believe that the requirements of modern chemistry have demanded so complete a reformation in the nomenclature and notation of the science. Perhaps the time is not far off when a purely mathematical mode of expressing chemical facts will be adopted, and Sir Benjamin Brodie's proposed *Calculus of Chemical Operations* be taught in elementary text-books.

Dr. Wood's *Notes on the Metals*, and Dr. Guthrie's treatise on *Heat and Non-Metallic Chemistry*, taken together give a very fair, though necessarily brief account of the present condition of inorganic chemistry, and perhaps the most important department of chemical physics—heat. Both books are written in very simple style, are very free from errors—typographical and others,—and

their contents are arranged in such a way as is least likely to discourage the student. We would recommend them in the present unsettled condition of chemical science in preference to larger and more costly works; and we doubt not but that they will become popular elementary text books.

M. Wurtz is one of the most distinguished chemists in France, and is one of the most eloquent advocates of the views of Gerhardt and Laurent. His *Dictionary of Chemistry* is one of the most accurate and comprehensive works on that science which have issued from the fertile press of France. The introduction to this dictionary has just been translated by Mr. Henry Watts, and constitutes one of the most delightfully written volumes—regard being had to the unpromising nature of the materials—which has ever come under our notice. The author describes the imperfect condition of chemical science—if, indeed, it could be properly designated a science—before the time of Lavoisier. In the hands of that great master chemistry ceased to be a collection of empirical arts and crude theories, and was by his almost unaided efforts raised to the rank of a true science; so says at least M. Wurtz, and many chemists will agree with him. This author, however, goes a little too far when he says “chemistry is a French science.” Lavoisier propounded the great theory of chemistry, which, though no doubt considerably altered, is accepted at the present day, and he devised a system of nomenclature which has endured, though considerably modified, to our own time. Nevertheless there can hardly be a question but that in the next century hardly a trace of Lavoisier’s language and theory will be found in chemical science. The reputation of Lavoisier rests chiefly upon the fact that he overthrew the theory of phlogiston, proposed a century before by George Ernest Stahl. According to the phlogistic theory, the metals, sulphur and other combustible bodies, are compounds of certain substances with an inflammable element termed phlogiston. When a substance—phosphorous for example—is strongly heated, its phlogiston escapes, producing the attendant phenomena of heat and light. Litharge and phlogiston constitute lead—rouge and phlogiston iron. The metallic calxes or ashes (oxides, as we now term them), are substances deprived of their phlogiston, and they, therefore, cannot be burned; but when they are heated in contact with charcoal—a body containing phlogiston—they take phlogiston from the charcoal, become metallic and combustible, and render the charcoal incombustible. In this apparently rational manner the phlogistic theory

accounts for the reduction of the metallic oxides, and the transference of phlogiston from one body to another. When it was discovered that metals gained in weight by losing phlogiston instead of decreasing, as might be expected, the advocates of this theory either slurred over the fact or maintained that phlogiston was the principle of levity as well as of heat, and that consequently bodies increased in weight by losing phlogiston. M. Wurtz does not notice this absurd assertion, but it was found necessary to adopt it as a postulate to support the phlogistic theory. Now, Lavoisier overturned the theory of Stahl, by showing that the combustion of the metals and other inflammable bodies was the result of their combination with a constituent of the air. This he proved by a series of beautiful experiments, which were surprizingly accurate, when we consider the defective condition of chemical appliances seventy years ago. At first Lavoisier's theory that combustion is the result of a combination, not decomposition, of bodies, met with a strenuous opposition. M. Wurtz describes the controversy; but in citing the authorities ranged against the French chemist he might have mentioned the name of our countryman, Kirwan, the latest and most able vindicator of the theory of phlogiston. In a few years the views of Lavoisier met with general acceptance, and there can be no doubt but that they served to quicken chemical discovery in a most remarkable manner.

The theory of phlogiston has met with an undue degree of ridicule. To our minds it was a highly philosophic hypothesis, and served to account for the facts known in the eighteenth century. Had Stahl been acquainted with the fact that combustible bodies united with a constituent of atmospheric air, it is probable that he would not have abandoned his views, but he would have modified them. It was no doubt a great defect in the phlogistic theory that no account was taken of the invariable increase in weight which combustibles acquire on parting with their phlogiston. On the other hand Lavoisier's explanation of the phenomena of heat and light attendant on oxidation, is in the highest degree unsatisfactory. He regarded oxygen as a compound of a ponderable body, with an imponderable element termed *caloric*. During combustion the caloric, which serves to keep the oxygen in a gaseous state, escapes. At the present time there is reason to believe that combustible bodies contain a peculiar force, which may become free, producing heat and light, without the intervention of oxygen; when, for example, gun-cotton, chloride of nitrogen, and nitro-glycerine,

explode, evolving heat and light, surely oxidation is not the cause of the phenomena? To us it would appear that Lavoisier attributed an undue degree of importance to oxygen. He assumed it to be the sole cause of acidity—hence its name. Davy first threw doubts as to the correctness of this theory, and in our time the general belief is that hydrogen and not oxygen is the acidifying element. Oxygen no doubt plays an important part in the economy of nature, but it is not, as Lavoisier believed, the sole agent in combustion, the sole cause of acidity. We cannot coincide with M. Wurtz in claiming for France, through Lavoisier, the merit of having created the science of chemistry. Remove from that science its system of notation, the atomic theory, the law of equivalents, the electro-chemical hypothesis, the theory of compound radicles,—ignore the discovery of the polybasic acids, the compound ammonias, and of isomerism, and how much remains of theoretical chemistry? Yet in all these matters France has had no share. We must, however, admit that M. Wurtz, although claiming chemistry to be a French science, has done ample justice to the chemists of other countries, and more especially to those of England. The latter part of M. Wurtz's book is occupied in describing the chemical theories of the present day, and this section of the work will be found to possess great interest, at least to the technical reader. In conclusion, we may say of M. Wurtz's book that it is a valuable addition to chemical literature, and that it has sustained no injury by its passage through the hands of its able translator, Mr. Watts.

We have so recently as last year reviewed, at considerable length, Professor Miller's large and valuable treatise. The book now before us is a new edition of the part on organic chemistry. It contains some new matter; but the most important features of it, as compared with its immediate predecessor, are the following:—the introduction of the metrical system of weights and measures; the adoption of the centigrade scale of temperature; and the uniform adoption of the new system of notation and nomenclature. Dr. Miller's work, as it now stands, is certainly the most valuable of the larger manuals of chemistry in the English tongue.

Messrs. Harcourt and Madan's work is, like most of the emanations from the Clarendon Press, carefully written. The subject matter is nearly altogether belonging to analytical chemistry. The language used is strictly scientific, and no attempt to "popularize"

the matter is made. The work is very neatly brought out, and is rendered doubly valuable by its numerous woodcuts.

Dr. Attfield's work contains more information of a practical character than is to be found in most works of its class. It is just the kind of chemical work which is most suited to the wants of the student of medicine. It is somewhat in the style of Galloway's "Second Step in Chemistry," but, in accuracy and the variety of its contents, it is greatly superior to the latter. We cordially recommend it.

On Asthma; its Pathology and Treatment By HENRY HYDE SALTER, M.D., F.R.S.; Fellow of the Royal College of Physicians; Physician to Charing Cross Hospital, &c. Second edition. London: John Churchill and Sons. 1868. 8vo, pp. 464.

WE regret the delay which has occurred in noticing this excellent work, and the smallness of the space we are now able to devote to it. A thorough study of any disease is of incalculable service, not only by reason of the improved method of treating it to the discovery of which such study may directly lead, but also because our knowledge of every great class of diseases is invariably increased by a careful study of a single member of the group. When a physician, in a centre like London, is known to have devoted himself successfully to the investigation of any malady, his reputation brings him an almost unlimited supply of cases, and he is thus enabled to present his professional brethren with the results of a number of observations on that particular ailment which could in no other way be collected. If there is one disease more than another in which experience is valuable, in which a happy hit in the treatment of a case immediately before us may be suggested by the history of a previous one, that disease is spasmodic asthma. We feel, therefore, no hesitation in saying that the physician who does not avail himself of the information, especially as to the effect of remedies which Dr. Salter's unrivalled experience enables him to give, acts unfairly by his patients and unwisely for his own reputation.

The first fifty pages are devoted to giving an account of the various theories which have been held as to the nature of asthma, and to proving that it is essentially a lesion of the nervous system, one of the great class of reflex or excito-motor spasms; in the next fifty is described its clinical history, these we recommend to be carefully read. There is a prevalent impression that asthma is one

of those diseases of which the diagnosis is easy—the treatment alone difficult; and it does seem hardly possible that any one could fail to recognize a well-marked paroxysm; but just as there are cases essentially epileptic in their nature which yet fail to show the striking phenomena of a fully-developed epileptic attack, so we are satisfied there are cases which are truly of the nature of spasmodic asthma, and what is the important matter amenable to the remedies which are good against asthma, the true character of which is very likely to be overlooked unless the practitioner is familiar with all the symptoms of that complaint. It so happened that within the past year three such cases fell under our own observation, all sufficiently suggestive of the necessity of care in diagnosis to deserve mention. An elderly lady consulted several physicians for an ailment of many years' standing, the symptoms of which she referred entirely to her stomach. She had an intolerable gnawing, which came on about three or four every morning, she said, and caused an indescribable feeling of tightness and general uneasiness about the lower part of her chest, which she knew was due to flatulence, and when the attack was passing off she got a deal of phlegm from her stomach; the flatulence, she asserted, oppressed her breathing, but the gnawing was the thing she wanted relieved. Her breathing was indeed always short, but it had been left so by a bad attack of bronchitis. Now it so happened that this lady always *went* to her doctor in the afternoon, and, of course, with all her attire on. Her attack had subsided by that time, and she was very unwilling to have the region of her stomach examined, she was afraid of being hurt, and so the result was that every one seemed to catch hold of the dyspeptic symptoms; and, as her regular medical attendant informed us, the remedies prescribed were such as are good against the indigestions—bismuth and silver, and pepsine and bitters—but it so happened that we accompanied him to see her in the morning, when the paroxysm was in full force, and when, being undressed, she submitted more readily to a satisfactory examination. The ear applied to the back failed to discover a trace of vesicular breathing. The heart could be felt beating in the epigastrium; the normal precordial dulness had disappeared. The case was plainly one of spasmodic asthma, with extensive sequential emphysema, and though the organic change forbad much hope of benefit from treatment, very marked relief did follow a nightly dose of thirty grains of bromide of potassium, with twenty minims of tincture of

belladonna and half an ounce of fluid camphor. At the very same time an elderly man was in attendance among the hospital out-patients, telling of the gnawing in his *stomach*, and the collection of wind and phlegm that gathered there. It never occurred to us that his sufferings were due to spasmodic asthma till the resemblance of the symptoms to those of the lady just mentioned struck us. We took him into hospital, where our suspicions were entirely confirmed. Still more lately we saw a man, said to be suffering under acute bronchitis, which had suddenly attacked him the previous night. He had suffered similarly, he said, six years before, and curiously (as he thought) in the same house which he had not slept in during the interval. The urgency of the symptoms and the intensity of the physical signs, the laboured breathing and the loud râles audible within his chest, had suggested the most active treatment. He had been extensively dry cupped and his chest covered with turpentine fomentations. The case was plainly one of spasmodic asthma, and the symptoms, which had refused to yield to such active treatment, were completely removed by a pipeful of strong tobacco. Such cases as these have convinced us that spasmodic asthma is not so infrequently overlooked; and on this account we recommend Dr. Salter's detailed account of its phenomena to the perusal of our readers.

The three next chapters of his work contain an account of the varieties of asthma, the etiology of the disease, and the organic changes in the lungs and heart brought about by the repeated paroxysms of impeded breathing. More than one hundred and thirty pages are devoted to treatment; in them the practitioner will find the information which he needs. The author begins with an enumeration of the remedies which are useful in checking the paroxysm; first, depressants, of which he has found tobacco, used with care and discrimination, one of the most valuable; then stimulants, among which he places highly very hot and very strong coffee; then sedatives, such as chloroform (which he has found uncertain in its effects), Indian hemp and stramonium, an evening pipe of which, when the leaves have been carefully dried, he has found of great use. He then describes the mode of preparing and using the nitre-paper, the dietetic and regimenal treatment of the disease, the therapeutic influence of locality, the use of iodide of potassium, and the hygienic management of the disease; while the last chapter is devoted to an examination of the indications which will enable us to form our prognosis in asthma.

Among the drugs useful in the treatment of the disease, belladonna is not mentioned in this volume; but in the *Lancet* for the 13th of last January there appeared a communication from Dr. Salter, in which he strongly recommended its use; the cases in which he has found it of striking value are those in which every morning the patient is awoke by a paroxysm, he gives it but once in the day, and that at bedtime. Beginning with a moderate dose of the tincture, he increases it each night by one minim until either the asthmatic fit is suppressed or the physiological effects—the dryness of throat, the confusion of head, and disturbance of vision—are produced. There is another remedy, already alluded to by us, which Dr. Salter does not appear to have tried—we mean the bromide of potassium; its known power in diminishing irritability in the nervous centres concerned in reflex action seems to point it out as a drug likely to be of real value; and our own experience in its use (which, however, has not been sufficiently extensive to justify a strong expression of opinion) has been very favourable; the draught already mentioned, in which it was combined with belladonna, has proved in our hands a most excellent one, more efficacious, as it appeared to us, than the belladonna alone. The treatment of asthma requires the utmost attention to details; these our readers will find carefully and fully dealt with in the monograph before us.

RECENT WORKS ON ANATOMY.

1. *Medical Anatomy.* By FRANCIS SIBSON, M.D., F.R.S., F.R.C.P.L.; Senior Physician and Lecturer on Clinical Medicine to St. Mary's Hospital; Member of the Senate of the University of London. Fasciculus VII. Imperial Folio. London: John Churchill and Sons.
2. *Gray's Anatomy, Descriptive and Surgical, with an Introduction on General Anatomy and Development.* By T. HOLMES, M.A., Cantab. London: Longmans and Co. 1869.
3. *Human Osteology, comprising a Description of the Bones, with Delineations of the Attachments of the Muscles, the General and Microscopic Structure of Bone and its Development, &c.* By LUTHER HOLDEN, F.R.C.S.; Surgeon to and Lecturer on Anatomy at St. Bartholomew's Hospital; Member of the Council

of the Royal College of Surgeons; Consulting Surgeon to the Foundling Hospital. Fourth edition.

4. *Practical Anatomy: A Manual of Dissections.* By CHRISTOPHER HEATH, F.R.C.S.; Assistant Surgeon to University College Hospital, and Teacher of Operative Surgery in University College, London. Second Edition. London: John Churchill and Sons. Pp. 596.

THE first on our list is the concluding Fasciculus of Dr. Sibson's great work on Medical Anatomy. It contains three plates and a large number of smaller figures interspersed through the letter-press. In it he describes and illustrates the heart in motion, and gives an account of the structure of the organ, especially as regards the muscular and valvular apparatus by which its movements are accomplished. Dr. Sibson succeeded in obtaining hearts, in some of which the ventricles had been left at death in a state of complete systole, in some in that of complete diastole, and in others, again, in an intermediate state. The vessels having been tied, the hearts were hardened in spirit and sections made. Many of our readers had, we know, an opportunity of seeing these beautiful preparations; and we are rejoiced to find that Dr. Sibson, with that true and unselfish desire for the advancement of scientific medicine which has ever characterized him, intends to place them in the museum of the Royal College of Physicians, so that they may be open to inspection. The work which is thus completed has been the labour of years; in it is presented the results of a long-sustained course of ingenious dissection of the dead body, of carefully contrived experiments on living animals, and of accurate observations in the hospital wards. Those only who are engaged in the daily effort to get a conception of the elements of physical diagnosis into the minds of students can appreciate the boon conferred on clinical medicine by Dr. Sibson. With no less fitness than generous appreciation of the Irish school, he has dedicated his work to William Stokes, the great teacher whose pupils have carried the knowledge of the physical diagnosis of disease over the civilized world.

The fact of a work reaching a fifth edition is an index either of its great attractiveness or of its recognized utility, and in the case of "Gray," the medical student's favourite manual of anatomy, both these causes have operated to call for a fifth edition within twelve years. Each of these has been an improvement on its predecessor,

and thus the work has grown from an extremely defective and erroneous treatise into a good, respectable, and trustworthy guide for the student; and while there are still sufficiently numerous omissions to interfere with the character of the book as a scientific treatise on human anatomy, yet for a guide to the ordinary student Gray occupies a position second to none. The main attractions of the book are the plates, which, being large, clear, and possessing a good dash of diagram in them, are of great value to the junior student. It is a pity that the editor of the present edition thought fit to prefix an introduction on general anatomy which we cannot but think both useless and injurious; in the first place, being confined in such narrow limits, it is necessarily so short and incomplete that the student who wishes to have even the least amount of information on histology which the examining boards require, will have to read some of the larger works on the subject, such as Carpenter or Sharpey, or Kölliker; and, in the second place, anyone acquainted with the habits of the average medical student knows full well that the disposition to diminish labour to a minimum is strong within him, and that many of the genus would prefer to "chance" an examination on the strength of the modicum of knowledge gathered from the introduction to Gray rather than trouble their heads by reading any of the above-mentioned works. In the third place, the space taken up by this introduction might have been more usefully employed, if occupied by more extended anatomical detail, which would have rendered the work more complete, and raised it from a mere student's handbook to the position of a scientific treatise.

We have little else to do in noticing Mr. Holden's work than to congratulate the author on the favourable reception of it as a student's text-book, which has called for the issue of this its fourth edition. The merit of the work consists in the facility it affords a student for acquiring an accurate knowledge of the bones of the human skeleton, by combining admirable representations of them, drawn on a scale larger than that of the ordinary text-book, with a description of their details, which, while it is exact, is relieved of the monotony common to most such descriptions. This the author has effected by introducing sufficient of the surgical anatomy, and of other collateral subjects, to fix the attention of the student on minute details, and to prove to him the value of studying them, each and all.

The chief point in which this edition differs from those immediately preceding it results from the fact that the lithographic plates have been re-drawn. The author informs us, in his preface, that this was necessary, as the old drawings had been worn out. The effect of this alteration is, that the plates are printed with greater sharpness, while they have lost nothing in their accuracy of detail by being drawn anew. It is to be regretted that some defects in the text of previous editions have not been altered, while one correction made in the present edition appears to us of doubtful utility.

The description of the "falling of the epiglottis" as "simply mechanical," "not produced by any special muscle," is, we think, inconsistent with the knowledge of its movements, as observed by the aid of the laryngoscope, or with the knowledge of the muscular fibres attached to it. We think that the author would have acted more wisely in removing the passage which describes the foot as a lever of the first order in raising the body, than he has done in adding a foot note, which conveys the idea that it may be considered a lever of the second order. It is clear it cannot be both, and we think the discussion of a question such as this had better be omitted entirely than be stated in such a manner as to leave the student in doubt between two opposite opinions, of the merits of which, in a question so difficult of solution as this is, most students are not competent to decide. Before closing this short notice of Mr. Holden's book we must point out an error which occurs in the present and in the previous editions, and which has been current in anatomical text-books ever since the publication of Cruveilhier's "*Traité D'Anatomie Descriptive*." Mr. Holden states that the inferior femoral epiphysis "is the only epiphysis in which ossification commences before birth." We can, from our own observations, positively contradict this statement, for in Irish children at full term the nucleus of the upper tibial epiphysis is, as a rule, well developed. The statement of Cruveilhier with regard to it, "*Je ne l'ai jamais vu précéder l'époque de la naissance*," seems to have given rise to the positive statement of Mr. Holden and others; but our own experience, and the fact that the nucleus has been figured and described in Quain's *Anatomy*, and that reference to other high authorities, who assert its presence at birth, are given by Mr. Quain, is, we hold, sufficient to justify our contradiction of Mr. Holden's statement. We draw attention to this point in consequence of its medico-legal importance.

We notice with pleasure the appearance of a Second Edition of Mr. Heath's Practical Anatomy. It is long since we discovered that a student may sit for hours at the dissecting table reading, or listening to his fellow dissector reading, a ponderous volume on Descriptive Anatomy, and may rise perfectly ignorant of the broad and rough relations of the parts. The larger works seem written on the assumption that the majority of those who are to use them have a determination capacity for sustained attention and mental training, such as few first year's students do possess, and we are firmly convinced that the reason many men abandon all attempt to get a genuine knowledge of Anatomy, and regarding it as one of those things which "no fellow can understand," seek only to learn to answer questions on it, is, that in their first dissection they attempt too much. There is no reason why in Anatomy the course should not be followed, which is assuredly the wisest in all other complicated studies, namely, to begin with the text-book, which gives the broad facts correctly, unincumbered with minute details; such a book is Mr. Heath's volume, clear, concise, sufficiently illustrated, and handy, it has been most judiciously chosen one of Mr. Churchill's now celebrated manuals.

Treatise on the Diseases of the Ear, including the Anatomy of the Organ. By ANTON VON TRÖLTSCHE, M.D.; Professor in the University of Würzburg, Bavaria. Translated and edited by D. B. St. John Roosa, M.A., M.D.; Clinical Professor of the Diseases of the Eye and Ear in the University of New York; Surgeon to the Brooklyn Eye and Ear Hospital, &c., &c. Second American, from the fourth German Edition. Wm. Wood & Co., New York, 1869; Trübner & Co., 60, Paternoster-row, London.

IN our number for February, 1863, we gave a notice of the original of the work now before us, "Die Krankheiten des Ohres," and quoted some extracts. The work is translated and edited by Dr. St. John Roosa, who in part also translated Stellwag von Carion. This American edition contains much supplemental matter by the editor, and several additional engravings, amongst which we may mention Gruber's plates of the membrana tympani, and a pretty picture of the mode of examining the ear by reflected light, in our opinion the best method. We are glad to see a chapter in this work on rhinoscopy, a subject so intimately connected with otology. We cannot commend this edition as a literary production, for the sense of its being a translation is always present during its perusal, a feeling which should never be experienced in a good translation.

PART III.

QUARTERLY REPORTS.

REPORT ON MEDICINE. ^a

By JAMES CUMING, M.A., M.D.; Professor of Theory and Practice of Medicine, Queen's College, Belfast; Physician to the Belfast General Hospital; Examiner in Medicine in the Queen's University in Ireland.

RECENT RESEARCHES ON CEREBRAL HEMORRHAGE. ^b

THAT cerebral hemorrhage is produced occasionally by the rupture of aneurisms has been known for some time. Isolated cases of this mode of origin of apoplectic clots have been at different times published by Gull and others. Virchow has shown that the arteries of the pia-mater of the old occasionally exhibit aneurismal dilatations of different forms, which give rise to hemorrhage by their rupture. Within the last two or three years, however, a much greater importance has been attached to the existence of minute aneurisms as leading to extravasation of blood in the brain than had been before suspected. A series of pathological observations of great interest and importance have been contributed by Charcot and Bouchard, which point to the origin of cerebral hemorrhage as being, in the great majority of cases, dependent on the rupture of miliary aneurisms seated on the small arteries of the brain.

The cases on which this conclusion has been based have been observed chiefly in the Salpêtrière, and it is from the wards of M. Charcot that the great mass of the material has been derived.

We propose to give a summary of some of the principal conclu-

^a The author of this Report, anxious that every contribution to Pathology and Practical Medicine should be noticed, will be glad to receive any publications on these subjects. If sent to correspondents of the Journal they will be forwarded.

^b BOUCHARD.—Sur quelques points de la pathogénie des hémorrhagies cérébrales Paris, 1866.

CHARCOT et BOUCHARD.—Nouvelles recherches sur la pathogénie de l'hémorrhagie cérébrale. Archives de Physiologie, Nos. 1, 5, 6. 1868.

CHARCOT.—Léçons sur les maladies des vieillards. Paris, 1868.

DURAND.—Des anévrysmes du cerveau. Paris, 1868.

PROUST.—De la pathogénie de l'inflammation, de l'hémorrhagie et du ramollissement du cerveau. Archives Générales. 1867.

sions which have been arrived at on this subject, the facts and arguments in support of which will be found in the papers of which the titles are appended.

Miliary aneurisms are visible to the naked eye, and can be easily recognized in the convolutions of the brain as small spherical globules, their diameter varying from $\frac{2}{10}$ ths of a millimètre to a millimètre. Within the substance of the brain they are less easily observed, and when hemorrhage has occurred, to detect them at the seat of extravasation, is a matter requiring much patience and nicety. The seat of extravasation must be laid open, and the portion of brain in which the clot is situated has to be placed in water, which is to be frequently removed, care being taken to avoid any shaking or disturbance of the clot. For this reason the water is to be poured off by gently inclining the vessel, and no other means must be employed to detach the clot. By carefully and repeatedly washing in this manner a large portion of the coagulum can be got rid of, and if the extravasation have been a recent one, the walls of the cavity will be found to present a villous appearance, owing to small filaments which are attached to them. It is among these that the aneurisms are to be sought for. A low microscopic power enables us to recognize their characters with ease and certainty.

In colour, miliary aneurisms vary according to their contents and to the thickness of their walls. When their walls are thin they exhibit a colour dependent on that of their contents, usually dark red when the blood is liquid, and reddish-brown when it has been for some time coagulated. In consistence some are soft and friable, rupturing under slight pressure; others firmer and somewhat elastic, and some remarkably hard and dense. Their number varies within very wide limits. In some cases of hemorrhage only two or three have been detected; in others more than a hundred have been discovered in the convolutions alone, and still greater numbers in the substance of the brain. The parts in which they are most frequently found are the optic thalami and corpora striata, next the pons, the grey substance of the convolutions, the claustrum, the cerebellum, the peduncles of the cerebellum, and, finally, the centrum ovale. It is curious that Cruveilhier should have figured bodies exactly similar to miliary aneurisms in one of his plates; but he regarded them as little coagula, and believed that the blood by which they were composed was in direct contact with the brain tissue.

The vessels on which these aneurisms are formed are minute

arteries which are visible to the naked eye, and which have a diameter of from $\frac{1}{30}$ to $\frac{1}{4}$ of a millimètre.

When the existence of miliary aneurisms were announced by Charcot and Bouchard, these observers confined themselves to the statement that in some cases of senile cerebral hemorrhage the presence of these bodies had been ascertained. Subsequent observation has shown them that they are found also in hemorrhage occurring in the brains of young persons. Their presence has been ascertained in 77 cases of cerebral hemorrhage observed by Charcot, Vulpian, Behier, Proust, Luys, and others. But what is most remarkable is, that in every single case of sanguineous apoplexy in which they have been sought for in the wards of Charcot, at the Salpêtrière, they have been discovered. Some idea of the wealth of material for observations on this subject at the disposal of this distinguished observer may be gathered from the fact that during eighteen months his hospital wards have furnished him with twenty-six *post mortem* examinations in this disease.

The authors specially guard themselves against being supposed to state that all cases of hemorrhage into the brain recognize the same origin. They fully admit its occasional production by thrombosis, by injury, and in the course of other diseases; but they believe that the vast majority of cases of cerebral hemorrhage proper, that is, of sanguineous apoplexy occurring mainly in old people but also met with in the young and in adult-life, depends on the presence and rupture of miliary aneurisms.

Do these aneurisms often exist in the brain in cases in which cerebral hemorrhage has not occurred? This question has been examined by Heschl. In 800 autopsies of individuals under forty years of age, he has met with them once only. From forty upwards they are, however, met with more frequently. In 133 examinations of individuals of from fifty to sixty years he has found them five times, or once in twenty-six. These figures show that their occurrence is to be regarded as exceptional, and point also to the fact that just as has been noticed with regard to apoplexy they are more frequent in advanced life.

The nature of the morbid process which leads to the formation of miliary aneurisms in the brain has been studied with great care by Charcot and Bouchard, and is of considerable pathological interest. It is essentially a chronic inflammation, mainly affecting the smallest arterial branches, although not exclusively confined to

them, and presenting this peculiarity, that it begins on the outer surface of these vessels, and invades their coats successively from without inwards. It has been accordingly named diffuse periarteritis. It must be remembered that this inflammation is not by any means a pus-producing process. In accordance with current pathological doctrines, it is to be regarded as the result of a formative irritation giving rise to increased proliferation of the cellular elements normally existing in the tissues of which it is the seat. The earliest and most distinct manifestations of this pathological process are to be seen outside the vessels altogether in the perivascular spaces or canals, which, as has been shown by Robin and His, surround the small cerebral arteries, forming an additional investment for them. The thin, transparent, homogeneous membrane which forms the boundary of these canals is sometimes found to be notably thickened and striated; but the most important and characteristic lesion consists in an increase, often to a considerable extent, of the cellular and nuclear elements which normally exist within the canals. The amount of cellular proliferation is in direct proportion to the severity of the vascular lesions. Precisely similar changes are found in the outer coat of the vessels themselves. At first a multiplication of the nuclei, afterwards a thickening of an apparently fibroid character, which sometimes proceeds to a considerable extent. The muscular coat, in its turn, becomes atrophied in some places, may even altogether disappear, being removed by absorption. It is specially noticed that this atrophy is not accompanied by fatty degeneration, and it is also found that the changes affecting this coat seem to be distinctly secondary to those involving the outer coat and the perivascular space, inasmuch as it is sometimes unaffected, while they are distinctly diseased, and as it is never found to have undergone this form of pathological lesion unless they are also involved in the change. The internal coat is sometimes altogether unaffected, more frequently it presents a multiplication of the oval nuclei, which are found on it, this being, however, always much less in degree and amount than the changes found in the outer tunics.

It is remarkable that all these coats may be in their turn involved, and that the lesion may be of the most marked and profound kind, without any evidences of fatty degeneration being discernible. When we remember the intimate alliance which exists between the fatty and many other forms of degeneration, this fact is seen to be very singular.

Now, at the points when these morbid changes are most marked, especially when the muscular tissue has been removed by atrophy, the vessels yield to the pressure of the blood, and dilatations and aneurisms of different forms are the result. The progress of these aneurisms is not necessarily towards rupture; they may become solidified by coagula, or a thickening and induration of the aneurismal walls may take place which may so strengthen them as to prevent its rupture. If even rupture does occur the wall of the perivascular sheath before described may prevent extravasation into the brain substance. But in many instances this membrane in its turn yields, and then a clot is formed in the brain.

A very interesting question arises regarding the relations of this morbid process to other known pathological conditions leading to the formation of aneurisms. In the large vessels, as is well known, aneurism is, in the vast majority of cases, connected with atheromatous degeneration. Are miliary aneurisms to be looked upon as the result of a process presenting a pathological kinship or identity with this familiar form of lesion?

If we admit the correctness of the account given by Charcot and Bouchard, we come at once to the conclusion that there exists a broad and well-marked distinction between the morbid condition leading to aneurism of the aorta for example, and that which is the cause of aneurisms in the brain. There can be no doubt that the process which leads ultimately to atheroma has its starting-point in the inner coat of the artery. Virchow unreservedly adopts the opinion long ago advocated by Bouillaud that the atheromatous change in an artery is preceded by an inflammation of the internal coat of the vessel in the same way as changes in the lining membrane of the heart itself are brought about by inflammation of the endocardium; and as the latter affection is termed endocarditis, so the inflammation of the internal coat of the artery is an endarteritis. It is secondarily to the disease of the internal coat that the other tissues of the vessel become involved. Here at once we have a capital point of distinction between atheroma and the diffuse periarteritis described by the French observers. In the one the lesion proceeds from within, in the other from without. In the one the internal coat is the first to suffer, in the other it is the last to become affected.

Other points of distinction are to be found in the seat of the atheromatous change in the cerebral vessels being, more frequently in the larger branches, in the presence with it of fatty degeneration,

and in the absence of dilatations of the same kind as the miliary aneurisms in the atheromatous vessels.

A question of great pathological importance is, whether any relation exists between softening of the brain and the occurrence of miliary aneurisms? It is well known with what force and ingenuity Todd insisted on the part played by softening in the etiology of hemorrhage. He taught that the minute vessels, being deprived in the softened portions of the brain of the support which they receive from firm brain texture, and being themselves often more or less diseased, give way and allow blood to escape into the tissue of the brain; and he laid down certain diagnostic peculiarities which he believed to indicate whether or not the hemorrhage had exceeded the limit of the softened patch, and come to involve the sound brain substance.

Todd's views have, however, not borne the test of subsequent experience; and it must be acknowledged that, up to the present time, we possess no means of establishing the differential diagnosis between hemorrhage and softening in many cases. But, while the clinical resemblance which exists between these affections is of the closest kind, this by no means implies that they are pathologically identical. Tumours of very dissimilar character give rise to symptomatic phenomena of the same kind, and, in many instances, cannot be distinguished from widely different cerebral affections. In most cases of softening there is, it is true, a morbid condition of the vessels; but this depends, not on that form of lesion which leads to the formation of miliary aneurisms, but on atheromatous degeneration.

The observations of Charcot and Bouchard point to conclusions very different from those of Todd. They have found that, while softening and hemorrhage sometimes coexist, there exists no necessary connexion between them; and that hemorrhage, in the great majority of cases, is not found to occur in previously softened portions of brain. After hemorrhage has occurred, the portions of brain substance which have been broken up become softened and degenerated, and a diminution of consistence is soon noticeable in the part of the brain surrounding the extravasation; but this is secondary to the hemorrhage, and depends, in the first instance, on the imbibition of the serum of the blood, and afterwards on pathological processes, connected with the further changes which take place in the clot.

Lastly, it may be asked if there be any connexion between the existence of miliary aneurisms and that of aneurisms of

the larger arterial trunks situated within the cranial cavity. If the aneurisms which are sometimes found affecting some of the vessels composing the circle of Willis are the result of atheromatous degeneration of their coats, the question must, it would seem, be answered in the negative. But it has been pointed out by Lebert and by others that this is by no means the rule with regard to these aneurisms; and that, in fact, cerebral aneurisms are in the majority of cases quite independent of and unconnected with atheromatous change. Facts are as yet wanting, however, to solve this interesting problem, as well as to determine whether or not analogous processes of disease to those which affect the minute cerebral arteries are to be met with in the small vessels of other viscera.

DIAGNOSIS IN BRAIN DISEASES.

Niemeyer^a states that an important indication of the existence of considerable effusions of blood or copious exudations of serum within the cranium, or even of the existence of tumours of some bulk, may be found in the state of the carotids. These diseases by filling up a certain portion of the space within the skull, compress the capillaries, and thus produce anemia of the brain substance. There will, consequently, be increased pulsation of the carotids, which is not to be regarded as an evidence of an increased flow of blood to the head, but as pointing to, the fact that the entrance of the blood is impeded. Accordingly, in cases in which an increased pulsation of the carotids is met with, and in which hypertrophy of the heart does not exist, nor corresponding pulsation in other arteries, some disease encroaching on the cranial cavity should be suspected.

It has been shown by Charcot and his pupils that valuable indications may be derived from thermometric observations in apoplectic conditions. It has been laid down, that in the apoplectic state, whether the result of cerebral hemorrhage, or of softening, if it be of a fatal character, the temperature will be found to present three periods:—Firstly, a lowering of about 1° Fahrenheit, during the first few hours after the attack; secondly, an oscillation between the normal temperature and 100° Fahrenheit, which period may cover a variable number of days; and thirdly, a period which announces the early approach of death, and which is marked by a rapid elevation of temperature, which attains 105° and upwards.

Dr. Larcher^b has published a very complete monograph on the diseases of the pons varolii. The account of the morbid conditions

^a Practical Medicine; translated by Humphreys and Hackley. New York, 1869.

^b Pathologie de la protuberance annulaire. Paris: Asselin. 1868.

of the pons is preceded by an excellent sketch of its anatomy and physiology. From an examination of the symptoms in a large number of cases, Dr. Larcher is enabled to state as general principles of diagnosis that the phenomena which most directly point to affections of the pons are convergent strabismus, especially when occurring in combination with other forms of visual disturbance, alternate hemiplegia or cross-paralysis, and perhaps general paralysis, occipital headache with embarrassment of deglutition, and loss or embarrassment of speech with integrity of the intellectual functions.

Dr. Larcher discusses very fully the interesting subject of cross-paralysis, or alternate hemiplegia, as it is frequently called, which is characterized by the existence of paralysis of the face on one side, and of the limbs on the opposite side. Although this form of paralysis has been found to occur independently of disease of the pons, there is no doubt that in the great majority of cases it owes its existence to lesion of this portion of the nervous centres. It may be said that no single lesion affecting any other portion of the encephalon is practically likely to produce it. If more than one lesion exists, as, for example, a clot in one hemisphere, and a tumour compressing the facial nerve of the same side, at any part of its course, we would find the face paralysed on the side in which the tumour exists, and the limbs on the opposite side. But combinations of lesions of this kind must necessarily be of very infrequent occurrence. For the production of cross-paralysis by disease situated at a single limited spot in the encephalon it is necessary that the lesion should involve the facial nerve itself, and at the same time the fibres of the motor tract at a point above their decussation at the anterior pyramids. As this decussation takes place at a point below the pons, it follows, of course, since cross-paralysis is found to accompany disease situated in the pons, that the roots of the facial nerve must decussate in the pons itself. It is a remarkable fact, that in this affection the facial paralysis is much more complete than in ordinary hemiplegia (the orbicular muscle of the eyelids, which is unaffected in the latter, being in this completely paralysed), and that the electric excitability of the muscles of the face is very much sooner lost than in facial paralysis accompanying ordinary unilateral hemiplegia.

As regards prognosis, affections of the pons must be regarded as almost invariably fatal. Some instances are on record in which recovery took place after hemorrhage into its substance; but instances of this kind are very rare.

TREATMENT OF RHEUMATIC FEVER BY PERCHLORIDE OF IRON.

An addition to the already numerous list of therapeutic agents employed in the treatment of acute rheumatism has been made by Dr. Russell Reynolds,^a who recommends the administration of tincture of perchloride of iron. He has in this way treated eight cases with very marked and speedy relief of the articular pain. The average duration of these cases, excluding two complicated cases, was ten a-half days, which is considerably less than the period observed under the expectant treatment. The writer of this report has tried this remedy in one severe case of acute rheumatism with the following remarkable result:—

Illness commenced August 8th. Treatment, fifteen minims of tincture of perchloride of iron every four hours, commenced on August 10th, or third day of illness.

	TEMPERATURE			PULSE	
	Morning	Evening		Morning	Evening
3rd day	—	103	...	—	124
4th "	102·6	100·8	...	108	96
5th "	100·8	101	...	87	92
6th "	101	101·4	...	92	94
7th "	98·8	99·8	...	64	76
8th "	99	98·8	...	60	60
9th "	98·6	98·8	...	64	60
10th "	98·4	98·6	...	64	64

Discharged convalescent on twelfth day from beginning of disease. The relief to the articular symptoms was very marked, and there was not the slightest check to the profuse perspiration, nor was there any constipation or headache produced.

AUSCULTATION OF THE HEART.

The cause of the first sound of the heart has been of late years generally admitted in this country to be tension of the auriculo-ventricular valves, produced by the contraction of the ventricles. This explanation, which was first proposed by Rouanet and Billing in 1832, has been regarded as satisfactorily demonstrated by the well-known experiments of Halford. The point, which is one of cardinal importance with reference to the interpretation of abnormal sounds of the heart, has recently been subjected to fresh examination in Germany with the result of raising some doubt with regard to the generally received explanation of the sound.

^a British Medical Journal, August 28th, 1869.

Ludwig and Dogiel^a have published a series of experiments on this subject, which seem to have been admirably contrived, and to have been executed with great care. After having completely arrested the flow of blood through the veins leading to the auricles, so as to deprive the heart completely of blood, they found that the ventricular contraction was accompanied by distinctly audible sound of the same character as that heard when blood is present in the ventricle. As it is evident that in the absence of blood it is impossible that the valves can be made tense, or can be the cause of sound, they came to the conclusion that the first sound of the heart is essentially dependent on muscular contraction.

Dr. O. Bayer,^b who adopts the opinion of Ludwig and Dogiel, states that he has found the first sound of the heart changed in character, and even replaced by murmur in cases in which *post mortem* examination proved that the valves were perfectly sound. In these instances he has always found that changes existed in the muscular structure of the heart. The fatty and the albuminous, and the pigmentary degenerations were sometimes present in so marked a degree as to be recognizable on mere inspection of the heart, but more frequently it was necessary to resort to microscopical examination to detect them.

Dr. Guttman,^c in conjunction with Professor Rosenthal, has repeated, with some modifications, one of Ludwig and Dogiel's experiments, and has found that a sound is unmistakably generated by the contraction of the ventricles, when the heart is completely empty of blood. He differs, however, with these physiologists with regard to the character and intensity of this sound. It is much weaker than the normal first sound, and resembles the sound produced by tapping with the finger the back of the hand held loosely over the ear. The element of valvular tension is accordingly the important one in the production of the first sound, the sound produced by the muscular contraction forming only a slight and unimportant part of it.

Naunyn^d believes that the fact that systolic murmurs, arising at the mitral valve, are not always best heard at the apex of the heart, but are sometimes most distinctly audible at the level of the third rib, an inch or two to the left of the sternum, is to be explained by the anatomical

^a Virchow's Archiv. 1869. 2 Heft.

^b Archiv der Phys. Heilkunde. 1869. 1 Heft.

^c Virchow's Archiv. 1869. 2 Heft.

^d Berlin: Klin, Wochenschr., and Virchow and Gurlt, Jahresbericht. 1869. 2 Band,

situation of the left auricular appendage which, as is known, curves forward to the right side, resting on the pulmonary artery. It thus approaches the wall of the chest, and so conducts the sound which is propagated into it with the regurgitating current of blood. The sound will be more or less distinctly audible according to the greater or less length of the auricular appendage.

FUNCTIONAL MURMURS.

Dr. Parrot^a argues that the so-called anemic murmurs of the heart are produced at the tricuspid valve, and not at the aortic orifice, as is usually stated. He believes that a large number of murmurs arising in the course of acute rheumatism have this origin. The mechanism of their production is, as was long ago urged by Gendrin, the following:—The right ventricle of the heart becomes enlarged by the yielding of its walls as a consequence of anemia or debility. As a result of this the right auriculo-ventricular orifice becomes also enlarged, and thence follows insufficiency of the valve. The murmur has its maximum intensity near the sternum, between the fourth and fifth ribs, at a point corresponding to the right auriculo-ventricular orifice. It is propagated somewhat towards the right sterno-clavicular articulation; but it is remarkably local, and it is always accompanied by manifest pulsation in the external jugular veins.

Dr. Wilks^b is not inclined to accept the theory which accounts for the occurrence of mitral murmur, in cases of chorea, by irregular action of the papillary muscles. In every fatal case of chorea which he has examined he has found the inner surface of the heart lined by a narrow row of bead-like vegetations, and this whether there was a history of previous rheumatism or not. In some cases in which the vegetations were found there had been no bruit during life. He believes, accordingly, that the cardiac murmur is organic, and is a consequence of the chorea itself, and not dependent on the occurrence of rheumatic endocarditis.

In a highly interesting memoir Dr. Da Costa^c discusses the nature and origin of cardiac murmurs which are met with in cases where neither anemia nor organic disease of the valves are present. The most interesting and important of these murmurs is undoubtedly that produced at the mitral orifice. This murmur may be

^a *Archives Générales de Médecine.* 1866. Vol. ii.

^b *Medical Times and Gazette.* February, 1869.

^c *American Journal of the Medical Sciences.* July, 1869.

distinguished from one depending on organic disease by being less harsh, less intense, of lower pitch, and by being less diffused. The functional murmur is rarely audible at the inferior angle of the left scapula, where organic murmur is often audible. According to Dr. Da Costa's opinion it is not, strictly speaking, an apex murmur, but is found above the apex over the body of the ventricle being usually best heard in the third interspace. It is in some instances increased by pressure, and it is also modified by the respiratory acts. It usually does not occupy the entire period of the first sound, and it is not, as a rule, accompanied by intensification of the second sound at the pulmonary valves, a phenomenon which is usually present in cases of organic mitral disease of some duration.

Dr. Da Costa has met with mitral murmur of this kind in respiratory affections, accompanied with decided obstruction to the pulmonary circulation, in tubercular infiltration, in many cases of asthma, in some of pneumonia, and in a case of pleuritic effusion, in which the valve was found after death to be perfectly sound. While admitting the probable occurrence in some cases of temporary mitral regurgitation, Dr. Da Costa suggests that in other cases an alteration in the tension of the mitral valve, brought about by excited action of the heart, may be the cause of the development of murmur—this changed tension, giving rise to vibrations in the blood, which are probably facilitated by any impoverishment of that fluid, as in anemia, but which may be produced without any change in its quality.

Referring to a case by the writer of this report, in a previous number of this Journal, in which mitral murmur existed without disease of the valve, Dr. Da Costa is inclined to refer the causation of the murmur to the pulmonary engorgement which was present, and not to regard the latter as brought about by mitral regurgitation.

It would seem a strong objection to Dr. Da Costa's theory that the murmur in question is not audible at and beyond the aortic orifice. If the blood in the left ventricle be thrown into such vibration that sound is generated by the compression and reaction of its molecules, the sound must surely be borne onwards by the current of blood in vibration which is being rapidly driven through the aortic orifice into the arterial system. Yet the murmur is not heard even at the aortic valves, and is, in fact, transmitted in an opposite direction to that taken by the blood, by whose vibrations, on Dr. Da Costa's theory, it is produced.

Besides, it is impossible to listen attentively to a mitral functional murmur without being struck by the identity of character between it and an aortic functional murmur. The same soft blowing character is present in both, leading the observer almost irresistibly to the conclusion that they are both due to similar causes—namely, the passage of a current of blood from a space in which it is subjected to considerable pressure to one in which the pressure is diminished.

A fundamental point in the consideration of the production of cardiac murmurs arising without distinct organic disease as their cause, is, can a murmur be produced by a membrane such as that composing the auriculo-ventricular valves without regurgitation? Can any change in its density or in its capacity for producing sonorous vibration so modify the sound generated by its tension that a murmur will be the result? In Germany this question would be unhesitatingly answered in the affirmative by many of the ablest auscultators. Bamberger^a states that he has heard murmurs of the most distinct character in cases in which he subsequently found the valves to be completely free from disease, and in which the only lesion present consisted in fatty degeneration of the papillary muscles. The murmurs which are found in anemia, chlorosis, in many fevers and in some cases of acute rheumatism, are, in his opinion, to be attributed to a weakened condition of the papillary muscles, owing to which the valve is not rendered sufficiently tense, and thus, after vibrations are permitted to occur.

Oppolzer,^b certainly one of the ablest practical physicians now living, in a series of lectures on practical medicine, now in course of publication, states that murmur may be generated when a valve is thickened or roughened, although it may be perfectly competent to prevent regurgitation. He explains this by the valve, in consequence of its altered physical condition, being no longer capable of producing the vibrations which give rise to its normal sound, and he holds that, even in cases in which regurgitation does occur, the thickened and roughened state of the valve preventing its normal vibration is an important element in the production of the murmur. Similar opinions are held by Niemeyer and by other eminent observers, and are in opposition to those generally entertained in this country. While there can be no reasonable doubt that the

^a *Krankheiten des Herzens*. Wien, 1857.

^b *Vorlesungen über Specielle Pathologie & Therapie*. 1867. Erlangen.

sounds of the heart are capable of being considerably modified, as regards clearness, intensity, pitch, and duration, by the state of the valves producing them, it seems to us as yet unproved that bellows-murmur can be generated without the action of a current of blood. It must, however, be acknowledged that, even with regard to the subject of cardiac disease, on which so much light has been thrown since the discovery of auscultation, there still remains a great deal of obscurity to be cleared away by future observations.

PROGNOSIS IN BRIGHT'S DISEASES.

Dr. Austin Flint^a publishes some interesting observations on this subject.

With reference to the prognosis in the different forms of disease grouped under the name of Bright's diseases, the cirrhotic, or contracted kidney, is, in the author's experience, of worst augury. Inflammation of the uriniferous tubes, the tubal nephritis of Dickinson, is, on the other hand, of least gravity.

Of 103 cases of Bright's disease, probably including instances of all the forms of this malady, there were good grounds for the opinion that 22 recoveries took place. How little constitutional disturbance may be produced by these affections is shown by the fact that out of 53 cases of Bright's disease in which no previous disease had existed, 30 had enjoyed apparently good health until dropsy or uremic symptoms supervened. In a number of instances patients continued to work for weeks, or even months, after œdema of the face and limbs had become manifest. As regards symptoms, uremic coma and convulsions are always dangerous, often rapidly fatal; but patients not unfrequently survive repeated attacks, and may even completely recover from the renal disease after these symptoms have been developed. If vomiting and purging be persistent, there is danger of coma and convulsions. Dropsy is unfavourable in proportion to its persistence and to its rapid return after having been removed. The prognosis becomes still more unfavourable if there is decided anemia or much general prostration. There is no definite relation between the amount of albumen in the urine and the occurrence of uremic symptoms; there is, however, a relation between the amount of albumen and the dropsy, the albumen being, as a rule, abundant in direct proportion to the dropsy. The smaller the amount of urea excreted the greater the risk of uremic symptoms.

^a New York Medical Journal, July, 1869.

Dr. Flint attaches great importance to the employment of hot air or vapour baths, to the administration of hydragogue purgatives in cases of uremic coma and convulsions. From elaterium, especially, he has seen marvellous benefit derived. In slowly-progressive cases he is inclined to hope for much benefit from change of climate.

INTERNAL USE OF CARBOLIC ACID IN SOME CUTANEOUS AFFECTIONS.

Carbolic acid has been employed rather extensively in the wards of Professor Hebra, of Vienna, with results of considerable interest, which are reported by Dr. Moritz Kohn.^a Under it hyperemia of the skin diminishes and finally disappears, a brown discolouration remaining; exudations become absorbed, and the formation of scales ceases. Cases of psoriasis, of pityriasis, and of pityriasis rubra have been rapidly cured by the use of this remedy without any external application whatever.

It is worthy of remark that during the internal administration of the remedy the urine was not found to present the dark colour and tarry odour which is observed after the liberal application of carbolic acid to wounds after operation. It affects the kidney a little, when long administered; for example, a little albumen was observed in the urine, and epithelial cells from the tubuli-uriniferi and the pelvis of the kidney were noticed. No troublesome urinary symptoms were, however, discovered.

Carbolic acid seems to possess a powerful effect on diseases accompanied by severe itching of the skin. Prurigo and pruritus cutaneus having been found to yield to its use in a remarkable manner—the itching in some cases ceasing almost immediately after its administration.

The form in which the remedy is best administered is that of pills. Each pill contains one grain, with four grains of some inert powder, and of these six to nine are administered daily at the beginning, the number being subsequently increased to from twelve to twenty. As much as a drachm of carbolic acid has been administered daily without injury, but so large a quantity is not necessary to produce the therapeutic effects. Dr. Kohn observes that in cases in which carbolic acid was found of decided utility, its beneficial effects were shown at a very early period after the commencement of its administration, often after a single day; and that in cases in which it failed to produce benefit early, that it usually failed altogether.

^a Archiv. für Dermatologie und Syphilis. Prag. 1869. 2 Heft.

REPORT ON OBSTETRIC MEDICINE AND SURGERY.

By GEORGE H. KIDD, F.R.C.S.I.; Obstetric Surgeon to the Coombe Lying-in Hospital; Hon. Sec. Obstetrical Society of Ireland; Examiner in Midwifery in the Queen's University and in the Royal College of Surgeons in Ireland.^a

REDUCTION OF THE VOLUME OF THE CRANIUM.

Though Albucasis and other ancient writers describe instruments for compressing the fetal head, so as to reduce its volume, midwifery practitioners have, till very recently, remained satisfied with the use of the perforator, and that most awkward, ill-contrived, and dangerous instrument, the crotchet; but at length attention is being directed to the necessity of having instruments for diminishing the head by their own action and not by the forcible dragging of it through the contracted passages of the mother. An early indication of this movement was the introduction by Assalini and Baudelocque, jun., of the cephalotribe, an instrument not unlike the "Almisdach" of Albucasis. Earlier still was the craniotomy forceps of Mesnard, which has been modified into the osteotomist of Davis and the cranioclast of Simpson; and more recently we have had the "forceps scie," or "chain saw forceps" of Van Huevel, preparing the way for the *écraseur* of Barnes, that has, along with the transforator of Hubert, been introduced within the present year.

Cephalotribe.—The modifications effected in the cephalotribe since it was first introduced have almost all tended towards a reduction in its size, and possibly a corresponding reduction in its power; thus Baudelocque's weighed 4 lbs. 12 oz.; Hicks, 2 lbs. 6 oz.; Simpson's and Kidd's, 2 lbs. 4 oz.; Braun's, 2 lbs.; but Dr. J. Matthews Duncan^b is not satisfied with one weighing less than 3 lbs. 5 oz. The instrument recommended by Dr. Duncan closely resembles that used in the French school, and has almost all the characteristics that all other British operators have tried to avoid. Dr. Duncan's object is to obtain great power, with a view, apparently, to the breaking up of the base of the skull; but the necessity for

^a The author of this Report, anxious that every contribution to obstetric medicine and surgery should be noticed, will be glad to receive publications on the subject. They may be sent to the publishers of the Journal through their correspondents.

^b On the Construction of the Cephalotribe. By J. Matthews Duncan, M.D. Edinbro. Med. Journal, Dec., 1868.

this is very doubtful, for, in point of fact, the base need very seldom be broken up in the operation. An examination of the head shows that while the vault of the skull is broken and flattened, the base glides between the blades of the instrument, so as to come down edgeways. This was well shown in a series of casts exhibited by the writer of this report at the Leeds meeting of the British Medical Association. These casts were taken from heads, the subjects of actual operation. They were taken before the instrument was removed from the heads, and the distance, from outside to outside of the blades, measured only from $1\frac{3}{4}$ to 2 inches—an amount of diminution sufficient for most purposes, and produced, as above described, by the turning of the base of the skull, so as to lie between the blades, and not by the smashing of the bones.

Sir James Simpson exhibited at the Leeds meeting of the British Medical Association a cephalotribe differing from his original instrument in two important respects. Instead of the Smellie lock it had the French pivot lock, and in the female blade there were three notches for the pivot, so as to facilitate the locking of the instrument where there was a difficulty in introducing the two blades to the same extent; and it seems very probable a lock of this kind will be found useful. The other change was the introduction of teeth, or sharp points, on the inner surface of the blades, making the instrument still more resemble the *almisdach* of *Albucasis*. These teeth are intended to give the instrument greater power of holding when it is used as a tractor; but inasmuch as such teeth must interfere with the gliding of the base when it is turning edgeways between the blades, they cannot be regarded as an improvement. Nor does it seem desirable that the holding or extracting power of the instrument should be increased, for the great use of the cephalotribe is not as a tractor but to break up and compress the skull till it can be extracted from the pelvis without force. In this respect the lesson conveyed by the leaden tooth extractor exhibited in the ancient temple should be borne in mind. A head that cannot be extracted with a smooth-bladed cephalotribe should not be extracted at all, at least not till it is more compressed.

Dr. Duncan thinks it desirable to use some kind of crotchet for the extraction of the head after it has been crushed by the cephalotribe, but this is because he uses a cephalotribe with a pelvic curve, which he acknowledges prevents the heads turning into a favourable position when descending after having been crushed. To remove

the cephalotribe and introduce the crotchet to extract the head is objectionable for many reasons; it complicates the operation; it allows the base of the skull to get out of its edgeway position; it allows the bones of the head to expand again; and it exposes both patient and operator to the risk of being wounded by the point of the crotchet. With a straight-bladed cephalotribe, such as is used in the Dublin school, there is no difficulty in extracting, or necessity for a crotchet, for the head turns of its own accord into the position most favourable for its descent.

It would appear from the following remarks made at a late meeting of the London Obstetrical Society, and reported in the *Lancet*,^a since the foregoing remarks were printed, that Dr. Barnes and others, notwithstanding the preference they generally give to curved instruments, are beginning to find that a straight cephalotribe is better for operating in a narrow pelvis than a curved one, and that it is better, as had already been urged by Dr. Hicks at a former meeting of the Society, to extract with the cephalotribe than to lay it aside after crushing for any other instrument, as suggested by Dr. Duncan:—

“ Dr. Barnes exhibited the head of a child delivered by cephalotripsy, with the instrument (Hicks’s) attached. The case was that of a wretchedly deformed rickety creature, aged nineteen, admitted, in the last week of first pregnancy, at St. Luke’s Workhouse, in which his assistance was requested by Mr. Harris. The conjugate diameter was estimated at from 1.25” to 1.50”, and the space on either side of the promontory was about the same. Dr. Barnes determined to act at once, instead of waiting for labour. He passed a bougie into the uterus on the afternoon of the 13th of September. At 3 p.m. on the 14th, there was some uterine action; and an appointment was made for 6 p.m. to complete the delivery. This was done, with the assistance of Messrs. Harris, Rogers, and Sison. The medium dilator was applied for ten minutes, and room enough was gained for work. After perforation, the cephalotribe was applied three different times. Some pieces of the cranial vault were removed by the craniotomy forceps, and then the head was extracted by the cephalotribe. The head was so well crushed and compressed that extraction was not very difficult, there never being any considerable pressure upon the mother’s parts. The whole operation lasted one hour. The mother did well, although a miserably feeble creature. Dr. Barnes believed the pelvis in this case was the smallest in which cephalotripsy had been successfully performed in this country. The instrument worked

^a *Lancet*, 16th October, 1869.

admirably, but he thought a less curve would be better. Dr. Barnes at the same time exhibited a cast of a head grasped by the straight instrument of Dr. Kidd, of Dublin, who kindly lent it to him.

“Dr. Hicks considered this case a very satisfactory proof of the efficacy of the instrument he had modified. He wished, however, again to advert to the remarks he had made as to the advantage of using the cephalotribe as a tractor also; because, although we may compress the head down to not much over an inch at the point of pressure, if the blades are removed, the after expansion of the bones is such that all the advantages of such compression are lost. So that an instrument with blades capable of less approximation, adapted as a tractor, is really more efficient.

“The President remarked that one practical deduction to be drawn from Dr. Barnes's case was the advisability of giving the cephalotribe very little curve. It was to be recollected that, in most cases of pelvic deformity, the pelvis was not only narrow, but shallow, and a nearly straight instrument would be generally applicable.

“Dr. Hicks would observe, with respect to the President's suggestion, that his later instruments were not so curved as the early examples. As to the concavity looking backwards, he thought we could always arrange that the quarter turn should be so that the concavity should look forwards; because, if we applied the instrument in the transverse of the pelvis, a quarter turn would bring the concavity to one or other side, so that the blades would be virtually straight as far as regards the antero-posterior aspect.”

Barnes' new Method of Craniotomy.^a—The forceps scie, or chain saw forceps of Prof. Van Huevel, of Brussels, was scarcely known in this country before the exhibition of instruments held by the London Obstetrical Society in 1866, though the memoir describing it was published in 1842. The instrument consists of a pair of strong long forceps carrying a chain saw. The head is first seized with the forceps and then cut into pieces by the chain saw. Dr. Barnes objects to this, that in cases of extreme distortion there is not room for the blades to pass. His own operation consists in passing loops of strong steel wire over the head and making sections by means of Weiss' ecraseur. At the date of publication he had not had an opportunity of performing the operation on the living subject, but he demonstrated it on the dead subject before the London Obstetrical Society on 2nd June, 1869, from the report of which, in the *Medical Times and Gazette*, the following extract is taken:—

^a *Medical Times and Gazette*, June 19, 1869, pp. 670.

“Dr. Barnes first perforated the head, then introduced the crotchet to steady it then, passed the wire loop into the uterus, which could be done by compressing it; and when the loop was sufficiently high, by removing the compression it opened by its elasticity, and was made to seize the head in its circumference at the occipital end. Then, by working the screw, the wire made a clean section of the head, taking off all the posterior part; this part was then removed by craniotomy forceps. Then the wire was reapplied in the longitudinal direction of the head, seizing under the jaw and ear, and another section made through the base of the skull. This was commonly enough. The remains of the head were then seized by Dr. Barnes’s craniotomy forceps, and easily drawn through the pelvis. Then there was the body, often opposing great difficulty. This he overcame by perforating the chest, by hooking the crotchet in the axilla of one arm to draw it down within reach of the embryotomy scissors to cut off; then the chest walls were cut up by the embryotomy scissors and drawn through the pelvis, either cutting off the other arm previously or not. The operation had this great advantage over the old crotchet and craniotomy forceps operations, that it involved little or no pressure or contusion, or dragging upon the uterus or other soft parts. The wire buried itself immediately in the head, and no bulky instruments or manœuvres bruising the soft parts were necessary.”

Transforation, or *Sphenotresie*,^a is the method of reducing the size of the fetal head proposed by Dr. Hubert, of Louvain. In introducing his account of it Dr. Hubert remarks, that in giving to the sphenoid the name which it bears to-day, the ancient anatomists proved that they considered this bone the key of the arch of the cranial edifice; and from their side accoucheurs know from experience that to obtain any considerable reduction of the head it is absolutely necessary to attack the base. Hence the cephalotribe of Baudelocque, the saw forceps of Van Huevel, the diatrypteur of Didot, and the cranioclast of Simpson.

The instrument Dr. Hubert proposes has the same object, but fulfils it in a different way. It first perforates the vault, then the base itself. It attacks above all the sphenoid, which it breaks up by piercing it with holes, and thus takes from the other bones their point of support and their connecting link.

The operation consists in traversing the vault of the cranium with the “*terebellum*,” breaking up the brain, placing on the side

^a Des moyens de réduction du volume du crâne et plus spécialement de sa transforation, et de la sphenotresie. Par. M. le Dr. L. J. Hubert, de Louvain. Mémoires de l’Académie Royale de Médecine de Belgique. 1^{me} Fasc. du Tome v. 1869.

of the face of the child a protecting blade, perforating the sphenoid in many places, and then either allowing the head to be expelled by the natural efforts, or using the instrument as a forceps for its extraction.

The instrument consists of two parts:—First, the terebellum, perce-crane, perforator or transforator, a blade of solid steel, with a handle at one end, and at the other a pear-shaped bulb, having on it a three-threaded screw, and terminating in a point similar to that of a trochar. Second, the protecting branch, or female branch, resembling the blade of a forceps, but narrower, being but 32 millimètres (=1.26 of an inch) broad. The point of the blade is slightly thickened, and is pierced with a bevelled hole, which is continuous, with a narrow fenestrum. The shank of this blade has a groove or channel on it destined to receive the shank of the terebellum, and on one edge of this groove there are two spuds, or catches, on pivots, and on the other side there is a screw, by means of which the shank of the terebellum can be rendered immovable when in the groove, so as to adapt the instrument to be used as an extractor.

In using the instrument, where the vertex presents, the position of the head must first be ascertained with very great care and exactitude, and the perforator or terebellum is then carried up to the presenting part in the same manner as the ordinary perforator, and then made to enter the head by a screwing motion. As soon as it has fairly entered it is to be used for breaking up the brain, and then the base of the skull is to be explored with it till the basilar fossa, or the body of the sphenoid, is fully recognized, when the point is to be entered to a short depth into one or other of these parts, or it is to be left free in the cavity of the skull.

The protecting blade is now to be introduced over the side of the face or temple, and the shank of the terebellum is to be placed in the groove in the shank of the protecting blade, and fixed there by the two spuds. All is now ready, and the operator proceeds to pierce the base of the skull at different points as near as possible to the median line. Two perforations may be sufficient when the disproportion is not very great; but more will be required when the narrowing of the canal is extreme, and they should be repeated till there is no longer any resistance to the extraction of the head.

After perforation the expulsion of the head may be entrusted to the powers of the uterus, which Dr. Hubert thinks the better plan, if the state of the patient is good, and if the parts have not

been too much irritated and swollen, and if the uterus be active; but if it be determined to proceed with the extraction the screw point of the terebellum is to be fixed in the base of the skull, and the handle secured in the groove of the protecting blade by means of the small lateral screw, and thus the instrument is converted into a firm forceps for the purpose. Dr. Hubert gives directions for operating in various presentations, and then relates a series of experiments showing the great reduction that may be effected in the size of the head by even two well-directed perforations. One series of experiments consisted in drawing the heads of fully developed children, who had died some days after birth, through a rachitic pelvis, measuring in the antero-posterior diameter not more than four centimètres (1·57 of an inch), which lead him to say that he would not despair to extract a child through a pelvis of this size, especially if he could adopt the plan of repeated operations, as Pajot does in cephalotripsy. He would not affirm that he could always succeed under these circumstances, or even most frequently, but success, he says, is certainly possible.

Dr. Hubert records 20 cases in which this operation was performed on the living subject. Of these 20 cases the shortest diameter of the pelvis was—

In	1 case	47	millimètres	(=1·85 inch)
„	4 cases	54 to 58	„	(=2·36 to 2·28 inch)
„	4 „	60 to 69	„	(=2·12 to 2·91 inch)
„	11 „	70 to 80	„	(=2·75 to 3·15 inch)

Ten of the women were primiparæ. Of the 20 women 3 died, and 17 recovered; of whom 2 had inflammatory attacks, and the others made natural recoveries.

Dr. Hubert makes the same observation that others have done, that the average success was greater in the cases of extreme narrowing than in those of a less degree. Thus in 12 cases where the narrowing was moderate (from 66 to 80 millimètres), there were 2 deaths, or 16·66 per 100; and in 8 cases, where the space was 65 millimètres, or under, there was only 1 death, or 12·5 per 100. But of these 25 per 100 had inflammatory attacks, and of the former the recoveries were all natural.

Dr. Hubert devotes more than 100 quarto pages of his memoir to a comparison of the merits of his instrument with those of the chain saw forceps of Van Huevel, of the cephalotribe, of the cranioclast, of the augur forceps (forceps a tarière), of the Brothers

Lollini, and of the transforation by means of the trepan, or the *Cephalotripsie intra-crânienne* of Guyon. The conclusions arrived at from this elaborate comparison are summed up in the following propositions, and if general experience establish all that is claimed for the operation it will certainly be a most valuable addition to obstetric surgery:—

1. Transforation of the cranium is always possible when crushing and section are possible.

2. It is also possible in certain cases when these two operations are not or are scarcely possible (*Asymetrical pelves*).

3. It can be practised earlier.

4. It is more easy.

5. It is less dangerous.

6. It enables us to trust the expulsion of the fetus to the efforts of nature, or to proceed at once to its extraction.

7. The limits of its action are at least as extended as those of cephalotripsy, and of the section of the cranium.

8. The results obtained are, for so far, more advantageous than those of section and of crushing.

9. The instrument being more easy to apply, more simple, and less costly, is more likely to come into common use.

In connexion with this method of transforation, it must be mentioned here, that at the last meeting of the British Medical Association Sir James Simpson exhibited a perforator having a screw on its point, making it closely resemble the pear-shaped extremity of Dr. Hubert's terebellum. This instrument is intended to break up the base of the skull, which it would, no doubt, do quite as well as Dr. Hubert's terebellum, while it would also answer all the purposes of a perforator. But if Dr. Hubert's instrument be a dangerous one, because of its liability to pass through the head and wound the uterus—and this is the great objection to the instrument—Sir James Simpson's must be still more dangerous, because it has no protecting branch.

POST PARTUM HEMORRHAGE.

The injection of perchloride of iron into the uterus in extreme cases of post partum hemorrhage, as suggested by Dr. Barnes, has had strong testimony borne to its usefulness. In a letter published in the *Lancet* of 30th January, 1869, Dr. Barnes gives the following account of the method he adopts:—

“A very convenient preparation is the *Liquor ferri perchloridi fortior* of the British Pharmacopœia. Half a pint of this may be carried in the ‘obstetric bag,’ and when wanted it may be diluted to a quart by adding a pint and a half of water. This dilution should be put into a small deep basin. The syringe most convenient is Higginson’s, fitted with a uterine tube about nine inches long. My syringe has a common mount, which is made to fit either the elastic dilators or the uterine tube. Care should be taken that the air is not sucked up into the syringe. To avoid this keep the entrance-tube of the syringe at the bottom of the fluid, and pump through back into the basin until the syringe is filled with the fluid. The apparatus being ready, pass the left hand into the uterus, clear away all the placenta and clots, then slip up the uterine tube along the palm of the hand, so as to carry the end of the tube up into the fundus of the uterus; then compress the syringe gently and steadily, so that the fluid may trickle down over the whole inner surface of the uterus. The pumping may be repeated until the basin is *nearly* emptied—not quite, lest the air be taken up. As the iron acts by coagulating the blood in the mouths of the vessels, and mere contact is enough for this, it is unnecessary to pump with any force.

“The effect of this injection is to corrugate the inner surface of the uterus, and commonly some degree of the muscular contraction follows. I have hardly ever known any more hemorrhage to occur after one injection. Henceforth the patient is safe from further loss; and if not already too far exhausted by previous loss, there is nothing to prevent the patient’s recovery.

“I have practised this plan for several years, and in a great number of desperate cases, where kneading, compression, ergot, cold in every form, had failed, and I have seen no bad consequences from it. Practised with the precautions I have laid down, I believe it is in itself safe, and I am certain that not a few lives have been rescued by it from otherwise imminent death.

“I have also used it in cases of excessive flooding attending abortion. But where the uterus is small, and the cervix not admitting more than the finger, I now prefer to apply the styptic on a swab, such as a common probang. I have a strong suspicion that in one case of early abortion, an injection made too forcibly by means of a caoutchouc bottle was the cause of a fatal catastrophe. The patient died almost suddenly soon after the injection, with symptoms resembling those consequent upon air entering the circulation.

“This, the only accident I am acquainted with, suggests caution. But in a desperate emergency, like flooding, we must be prepared to encounter some risk, rather than suffer the patient to lose that last little stock of blood in which the life of the patient lingers.”

PERITONEAL ADHESIONS OF THE GRAVID UTERUS AS A CAUSE OF
POST PARTUM HEMORRHAGE.

Dr. Graily Hewitt^a related to the London Obstetrical Society a case in which, after the birth of twins, the placenta was retained, and there was profuse hemorrhage. The placenta was removed by the hand, the fundus uteri lying very high up in the abdomen, and seven days afterwards death ensued from gradual exhaustion, there having been a little secondary hemorrhage. The *post mortem* examination showed firm, tough, broken off adhesions at the top and back of the uterus, giving it quite a shaggy aspect. The ends of these string-like bands hung freely, and were two to three inches long. It was evident that the uterus had been adherent superiorly by these adhesions, and that they had been broken through when the uterus was finally made to descend. Dr. Hewitt related other cases in which it was probable there were adhesions interfering with the contraction of the uterus; but, as the patients recovered, their existence was not verified.

RUPTURE OF THE VAGINA IN LABOUR.

The case of Regina v. Popplewell, in which a medical man was accused of having torn away the entire uterus from a woman he had attended in labour, led Dr. J. Braxton Hicks to investigate the causes of rupture of the vagina, and the means by which the uterus may be completely dissevered in the course of labour from its attachments. In the case referred to, the patient was delivered with the forceps while lying on her back, and half an hour afterwards, the placenta not coming away, the medical attendant made gentle traction on the cord, and, very much to his surprise, the uterus came down wholly detached. Dr. Hicks argues that once the head has escaped out of the uterus, if its further progress be opposed by the pelvic bones or otherwise, the whole force of the uterine contraction will be expended in drawing the uterus upwards off the child, being restrained in the first place by the vagina, the connecting tissue, and the round ligaments. If the vagina only gives way partially, the uterus may draw itself off the child and fall down in the pelvis beside it, the head of the child remaining in the lower part of the passage, and its body escaping into the abdomen through the rent. Such a case Dr. Hicks has himself met with, and he quotes Dr.

^a *Lancet*, June 12, 1869.

Collins and Dr. Ingleby as describing cases where the connexion of the vagina with the uterus was more or less completely severed.^a

Messrs. Paget and Denton,^b of Leicester, record a case that came under their observation, in which the uterus also came away with the placenta. The patient was attended by a midwife, and the labour (her third) was over without difficulty in three hours. The placenta was removed with but little traction twenty minutes after the birth, but brought with it the whole uterus, Fallopian tubes and ovaries, the vaginal membrane hanging loose, and jagged by the laceration. The woman died in forty-five minutes. Messrs. Paget and Denton attribute the laceration to the same cause as that assigned by Dr. Hicks, and like him argue that it is only by the action of the uterus itself that such a laceration could be produced, unless an inversion had previously taken place.

CHRONIC INVERSION OF THE UTERUS.

At a meeting of the Royal Medical Chirurgical Society, Dr. Barnes read a paper on the operations for the relief of this affection, of which the following summary is given in the *Lancet* :—

“Of cases treated by ligature, only 26 were successful, 10 unsuccessful, and of the latter 8 died; of cases treated by ligature and excision, 9 were successful, 3 ended fatally; of cases treated by excision only, 3 were successful, and 2 died; of cases treated on Tyler Smith’s plan, by sustained elastic pressure, 6 successful cases had been published; and of cases treated by forcible taxis, some had proved successful, but 3 had died. The ligature and excision were open to the double objection that, besides being very hazardous to life, success was only achieved at the expense of mutilating the patient. Forcible taxis was a violent and often fatal proceeding. Sustained elastic pressure had given remarkable results, but cases would occur where the constricted cervix uteri would resist simple pressure. The author related a case of inversion of six months’ standing which resisted elastic pressure kept up during five days; and in which he resorted to a plan, then practised he believed for the first time, of making three longitudinal incisions into the os uteri, so as to relax the circular fibres; taxis then applied quickly succeeded. The woman made an excellent recovery. The author proposes, as the best proceeding where simple sustained elastic pressure fails, to make an

^a *Lancet*, Jan. 23, 1869.

^b *British Medical Journal*, March 27, 1869.

incision on either side of the os uteri, and then to reapply the elastic pressure, as being safer from the risk of laceration than the taxis." ^a

SPECULUM.

At the suggestion of Dr. A. Meadows^b Messrs. Mayer and Meltzer have added to the ordinary bi-valve speculum two lateral bars which, when the instrument is closed, lie between the blades, and when it is open stand out one at each side, so as to prevent the folds of the vagina from falling in so as to obscure the view of the uterus. A further improvement in this speculum was exhibited by Messrs. Mayer and Meltzer at the Leeds Meeting of the British Medical Association, which consisted in making the anterior blade half an inch shorter than the posterior, by means of which the os uteri is much more easily brought into view, and the dragging of it forwards, which takes place when the anterior blade is of the same length as the posterior, is obviated.

HALF-YEARLY REPORT ON PUBLIC HEALTH.

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STATE MEDICINE.

THE importance of preventive medicine, or public hygiene, has long been recognized by scientific men; but it is only within the last quarter of a century that it has attracted much popular notice or enlisted the sympathies and support of the governing classes. It is barely a quarter of a century since the British public were startled by the publication of Mr. Edwin Chadwick's Reports on the insanitary condition of English towns; and since that period sanitary reform has steadily—though far too slowly—progressed.

^a On the Operations for the Relief of Chronic Inversion of the Uterus, with the Account of a Case Successfully Treated by a New Method. By Robert Barnes, M.D.; Obstetric Physician to St. Thomas's Hospital.—*Lancet*, Ap. 24, 1869.

^b *Lancet*, January 23, 1869.

^c The Editor of this report will be glad to receive any works, publication, or papers on hygiene, forensic medicine, food, climatology, &c.; they may be sent to him through the correspondents of the *Journal*, or direct to Dublin.

During the last century, and the early part of the present, Parliamentary legislation in relation to public health might almost be expressed by the word *nil*. In ancient Greece, and even in Rome, far more attention was paid to the conservation of public health than was bestowed upon that vital subject by the ruling powers of our countries until very recent times. In many parts of the continent the value of preventive medicine has long been recognized and taught in the colleges; and so early as the twelfth century the conservation of health formed a prominent part of the medical curriculum of the celebrated University of Salernum. Long after Great Britain had attained to an extraordinary degree of prosperity—when England contained larger and more numerous towns, and supported a denser population than any equal extent of land in the world—there were no general provisions in force for the maintenance of the health of the community. There were no medical officers of health, no medical inspectors, no public analysts, no inspectors of nuisances, no sanitary police. Preventive medicine was not taught in any university or college in the United Kingdom, and even forensic medicine was but little appreciated. Thirty years ago any sanitary laws that were in actual operation were merely local ones, enforced by a few municipal corporations.

Since the year 1846 not a Session of Parliament has closed without passing several useful sanitary measures, amongst which may be specially mentioned the following:—"The Baths and Wash-houses Act, 1846," "The Towns Improvement Act, 1854," "The Nuisances Removal and Diseases Prevention Acts, 1855 and 1860," "The Public Health Acts, 1849 and 1858," "The Local Government Act, 1858," "The Adulteration of Food Prevention Act, 1860," "The Bake-houses Regulation Act, 1863," "The Nuisance Removal (Amendment) Act, 1863," "The Sanitary Act, 1866," "The Sewage Utilization Act, 1863," "The Workshops Regulation Act, 1867," The Burial Acts of 1850, 1852, 1854, 1856, and 1857, The Compulsory Vaccination Acts of 1863 and 1867. Acts have been passed to prevent the pollution of the air by smoky chimneys, and the pollution of rivers by drainage of an offensive nature. Women and young children are no longer permitted to work in mines. The age at which children may work in factories is limited; and the working hours and meal-times of men, women, and children employed in the great factories of these countries are settled by Acts of Parliament. I believe that many most useful provisions of the sanitary laws are

not generally known; and it would be most desirable all the Public Health Acts in force should be codified and published in a cheap form. Such a publication would be of great value, not only to medical officers of health and inspectors of nuisances, but also to the various local authorities, who for the most part, and perhaps in most cases unfortunately, are entrusted with the execution of the sanitary laws. It is noteworthy that the first sanitary Act of a general character passed by Parliament was limited in its operations to Ireland; and the first effort made to improve the condition of burial grounds arose out of the overcrowding of a Dublin suburban cemetery.

In preventive medicine, as well as in so many other departments of knowledge, practice is still very far in advance of theory. We are acquainted with the means whereby many diseases may be deprived of much of their virulence, and others may be completely eradicated; yet of the remoter causes and intimate nature of these maladies we are almost completely ignorant. Very nearly one-fourth of the number of deaths in these countries results from the diseases termed zymotic. Yet our knowledge of the ultimate causes of zymotics could hardly be more limited than it is. Practically, we have discovered various methods by which the ravages of these formidable diseases have been lessened; but although we know the means wherewith one or two of them might be "stamped out," yet we cannot expect the extinction of the class of zymotics until their nature and causes shall have been accurately determined. The study of zymotic diseases, from a preventive standpoint, promises more valuable results than any other class of investigations carried out by the scientific physician. These diseases possess a terrible interest; for, as Dr. Farr truly observes, they distinguish one country from another, and one year from another; they decimate armies and disable fleets. They constitute the common cause of pauperism, because they select their victims chiefly from amongst the bread-winners of the very poor. These diseases, says Niebuhr, have determined not only the fate of cities—Athens and Florence, for example—but even of mighty empires. During the fourteenth century they converted Europe into a vast charnel-house, carrying off, during a very short period of time, no fewer than 25,000,000 of people, at the lowest computation.

There is much wanted a class of medical men who would devote themselves wholly to the study of public hygiene. As a general rule, physicians in extensive practice have but little time to devote

to scientific pursuits; and there are few practitioners who are so fortunate as to have numerous patients who could study, for example, such subjects as water analysis, adulteration of food and drugs, diseases of the animals used as food, epiphytic outbreaks, sewerage, soils, disinfection, ventilation, construction of manufactories evolving noxious gases and vapours, &c., &c. Sanitary science is made up of so many branches of knowledge that all the great questions relating to the public health cannot be satisfactorily answered by any save those who combine in themselves the qualifications of the pathologist, the chemist, the physician, the botanist, and the geologist. We are glad that this subject is now so prominently before the profession. At the last meeting of the Medical Council the subject of granting degrees or diplomas in State medicine was warmly discussed, and the majority of the Council were in favour of the creating of such qualifications, provided they were merely additions to some one of the existing medical licenses. The Council, after a prolonged discussion, passed the following resolution:—

“That in any amended medical bill which may be prepared for Parliament by the Council, *it is desirable* that the requisite permissive clauses for registering a qualification in State Medicine be inserted, in addition to any of the qualifications sanctioned by the Medical Act.”

The report of the Committee which led to the foregoing resolution being adopted is as follows:—

“Office of the General Council of Medical Education,
32, Soho-square, London, W., 1868.

“SIR,—A Committee of the Medical Council has been appointed to inquire into and ‘to report on the steps proper to be taken, if any, for granting diplomas or certificates of proficiency in State Medicine, and for recording the same in the *Medical Register*, due regard being had to the interests of the existing health officers in the several parts of the kingdom.”

“The Committee have decided that such diplomas or certificates ought to be granted, after due examination, to persons who are already, or shall hereafter be, entered upon the *Medical Register*, and to no others.

“The Committee are about to draw up a report on the education which in their judgment is proper for such persons; the time it should occupy; and the mode of examination.

“The Committee would feel much obliged to you if you would give to them your opinion on these points, and on any others which may appear to you proper to be discussed by them.

"In order to assist you in arranging your answer, I venture to append a list of questions, by no means intending to limit the form or extent of your communication, but to indicate in certain detail the information the Committee desire to obtain.

"A memorandum drawn up for another purpose is also enclosed.

"Of course the Committee do not presume to trouble you to answer those inquiries with which you may not be familiar.

"The Committee desire me to express to you their hope that the national importance of this question may prove a sufficient excuse for the trouble they are giving to you, and that you will be kind enough to return an answer before November, to me, at the above address.

"I am, Sir,

"Your obedient servant,

(Signed)

"HENRY W. ACKLAND,

"*Chairman of the Committee.*

"*Questions.*—1. Various subjects, such as Forensic Medicine, Toxicology, Morbid Anatomy (Human and Comparative), Psychological Medicine, Laws of Evidence, Preventive Medicine, Vital and Sanitary Statistics, Medical Topography, and portions of Engineering Science and Practice, have been suggested as those in which examinations should be passed by candidates for a diploma or certificate in State Medicine. Would you state what are the subjects which, in your opinion, should enter into a programme for this purpose? 2. What is the time which should be exclusively given to these subjects, supposing it to be commenced, after the completion of the ordinary period of medical study? 3. What might be the order of such studies? What should be the method of study adopted? 4. In which of these subjects of study would practical instruction appear necessary? 5. To what extent should the study of these subjects respectively be carried? Can you suggest any books which furnish an approximate standard of the knowledge you would recommend? 6. What are the deficiencies which you have observed in medical witnesses? 7. How would you propose to remedy them; by what education—legal or scientific? 8. How should a Court of Examiners in this subject be constituted?"

Last year a joint Committee of the British Medical Association and the Social Science Congress were appointed to draw up a report on State Medicine. They have prepared a very elaborate series of questions, which they propose to address to all the more distinguished cultivators of sanitary science, and to the medical officers of health and other sanitary officers. These questions are as follow:—

"I. LOCALITY.—*a.* Borough, town, parish, or district? *b.* Under

what Act or Acts is local authority constituted? *c.* Population in 1861? *d.* Area? *e.* Mortality, average annual rate for ten years from all causes? from zymotic diseases?

“II. OFFICERS OF HEALTH.—*a.* Is there any Officer of Health? *b.* When was office first instituted? *c.* Is he of the medical profession? *d.* If not, of what profession, calling, or qualification? *e.* What are his duties? *f.* What has been, and is now, the amount of salary? *g.* When was *Medical Officer of Health* first appointed? *h.* Salary, past and present? *i.* Duties? (in detail). *k.* Is he allowed to practise? *l.* If so, does it interfere with his duties, or is his practice injured by the office? *m.* To whom, and how often, does he report, and are the reports made public?

“III. HEALTH OFFICERS UNDER ARTIZANS' AND LABOURERS' DWELLINGS ACT, 1868.—*a.* When appointed? *b.* Is he a Medical Officer of Health? *c.* A sanitary inspector? or *d.* a surveyor? *e.* Salary? *f.* Other duties, if any? *g.* What measures have been adopted, under this or any previous Acts, for the improvement of Dwellings?

“IV. SANITARY INSPECTORS.—*a.* How many? *b.* Profession, calling, or qualification? *c.* In what respect do the duties differ from those performed by Inspectors of Nuisances? *d.* Salary? *e.* Does he report, and, if so, how often, and to whom? *f.* Is he under the control of the Officer of Health?

“V. INSPECTION OF FORTS, EMIGRANT DEPOTS, SHIPPING, AND RIVERS.—*a.* By health officer, or by special Inspector? *b.* When was office instituted? *c.* When was present officer appointed? *d.* Special qualifications? *e.* Duties, and time devoted to their discharge? *f.* To whom, and how often, is report made? *g.* Are any measures adopted to prevent the pollution and obstruction of rivers or water-courses in the district? *h.* If so, under whose direction and advice?

“VI. INSPECTORS OF NUISANCES.—*a.* How many usually employed? *b.* Calling or qualification? *c.* What are the duties of the office, and does each officer devote his whole time to them? *d.* Salaries? *e.* Are they under control of Officer of Health? *f.* To whom, and how often, do they report? *g.* Are there any inspectors under Smoke Nuisance Act? *h.* Annual number for ten years of summonses and convictions of all kinds?

“VII. INSPECTORS OF COMMON LODGING HOUSES AND LABOURERS' COTTAGES.—*a.* How many Inspectors of Lodging Houses? *b.* Calling or qualification? *c.* Salaries? *d.* How often do they visit? *e.* Do they report to the Officer of Health? *f.* Is there any inspector of labourers' cottages, and if so, by whom?

“VIII. INSPECTIONS OF FACTORIES, WORKSHOPS, AND MINES.—1. *Fac-*
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tories. *a.* Under which of the *principal*, and which of the *sub*-Inspectors, is the district placed? *b.* How many Sub-Inspectors? *c.* Duties as regards sanitary condition of factories, health of workers, nature of work as affecting health? *d.* Special qualifications, if any, for discharging these duties? *e.* Conditions bringing factories and workshops under the operation of the Factory Acts? *f.* Sanitary requirements? *g.* Certifying medical officers; number acting within borough, town, or district? duties and qualifications? whether also employed as medical attendants to the owners of, or workers in, factories, or other establishments, for which they act as certifying surgeons? *h.* Payment by fees, how regulated? *i.* Conditions under which certificate is given or refused? *k.* Periodical examination of those under certificate? *l.* Opportunities of ascertaining nature of work? health of workers? and healthiness of work-places? *m.* In communication with health officer or not? 2. *Workshops.*—*a.* Is inspection carried out by local authorities? *b.* How far worked in connexion with organization created by Factory Acts? *c.* Persons authorized as Inspectors? *d.* Duties: in certifying age and physical capacity for work? as regards healthiness of workshops? and nature of work as affecting health? *e.* Special qualifications? *f.* Mode of Remuneration? *g.* To whom, and how often, do they report? *h.* In communication with Health Officer, or not? 3. *Mines.*—*a.* Number and names of Inspectors in district? *b.* Special qualifications? *c.* Duties: in ascertaining age and physical condition of children employed? as regards ventilation and other sanitary arrangements? *d.* Remuneration?

“IX. INSPECTORS OF FOOD, MARKETS, BAKEHOUSES, AND SLAUGHTER-HOUSES.—*a.* How many? *b.* Calling or occupation? *c.* Duties, and time devoted to their discharge? *d.* Salaries? *e.* How often do they report, and to whom? *f.* Annual number for ten years of: summonses? and convictions? (of all kinds).

“X. PUBLIC ANALYSTS.—*a.* Has any such officer been appointed? *b.* If so, has he been appointed for a county, borough, or district? *c.* When was office first instituted? *d.* Qualifications and profession of present officer? *e.* Salary, past and present? *f.* Average yearly number of analyses? *g.* What convictions have been obtained? *h.* Is he in communication with the Health Officer? *i.* Is the water regularly analysed? *k.* Is the expense of such analysis defrayed by any of the water companies, or by the local authority?

“XI. REGISTRATION OF BIRTHS AND DEATHS.—*a.* Area and population of sub-districts? *b.* Is the registration area co-extensive with the district of the local authority? *c.* Number of Registrars? *d.* Calling or profession, and qualification of registrars? *e.* Is the Medical Officer of Health afforded information by the registrars, and is he permitted to consult or obtain extracts from the registers? *f.* What proportion of

births in the district is not registered, and to what causes is non-registration due? *g.* Are still-births registered or inquired into? *h.* How many public vaccinators? *i.* Do they furnish reports? If so, how often, and to whom? *k.* Is the registration of births affected injuriously by the Vaccination Acts? *l.* Number of deaths annually uncertified? *m.* Is the body seen by medical attendant immediately before or after death? *n.* If not, what course is adopted by registrar? *o.* Are certificates generally accurate and trustworthy?

“XII. INVESTIGATION OF CAUSES OF SICKNESS, for instance, the effects of—*a.* Overcrowding of dwellings, schools, workshops, etc.? Defective and bad drainage? Defective and impure water supply? Exposure to contagion? Want of carriages for conveyance of sick? Intramural burials? Retention of dead bodies in crowded apartments? Want of mortuaries? *b.* By whom conducted, if at all? *c.* What measures have been taken, or works executed, for the abatement of any, or all, of these evils?

“XIII. RECORD OF CASES OF SICKNESS.—*a.* Is any provision made for recording cases of sickness not proving fatal? If so, to and by whom? *b.* Do the medical officers of unions, workhouses, public or charitable institutions, clubs, and provident dispensaries, afford information of diseases coming under their notice? If so, how often, and to whom? *c.* Do they publish reports of sickness and its results?

“XIV. INVESTIGATION OF CAUSES OF DEATH.—*a.* Coroner of County, portion of County, or Borough? *b.* Area and population of his district? *c.* Date and mode of his appointment? *d.* Calling or profession? *e.* Salary? *f.* How many inquests held in each of the last *ten* years? *g.* In how many cases in each year was medical evidence taken? *h.* Who is usually called on to give medical evidence? *i.* In how many cases were *post mortem* examinations performed? *k.* In how many cases were analyses made? *l.* Out of what fund are expenses of analyses defrayed? *m.* Total annual amounts for examinations and analyses?

The Royal Sanitary Commission, which was issued on April 20, 1869, directs the Commissioners to inquire into and report on:—

The operation of the sanitary laws in England and Wales, with the exception of that part “which is under the jurisdiction of the Metropolitan Board of Works,” so far as these laws apply to (1) sewerage; (2) drainage; (3) water supply; (4) removal of refuse; (5) control of buildings; (6) prevention of overcrowding; and (7) other means of promoting the public health. The operation of the laws for preventing the introduction and spreading of contagious and infectious diseases, and

of epidemics affecting the health of man. The administration of the sanitary laws, including the constitution of the central and local authorities charged with the administration of such laws, and the formation of areas proper to be controlled by local authorities. The operation of that part of the registration system which relates to certificates of causes of death."

"The Commissioners are also directed to suggest improvements in all or any of the matters referred to them, and the means proper for carrying into effect the suggested improvements."

There are twenty-one commissioners, of whom only four are medical men, namely—Dr. Paget, 1, Harewood-place, Hanover-square, W.; Dr. Acland, Oxford, and Athenæum Club, Pall Mall, S.W.; Professor Christison, 40, Moray-place, Edinburgh; and Dr. Stokes, 5, Merrion-square North, Dublin.

Communications are to be addressed to the secretary, Wm. H. Birley, Esq., 13, Old Buildings, Lincoln's Inn, W.C., from whom full information relative to the objects of the commission may be obtained. A circular letter, containing numerous queries, has recently been addressed by the commissioners to the leading health officers and sanitarians of the United Kingdom. It would, therefore, appear that the commissioners do not intend to confine their inquiries to "England and Wales."

Why should not Ireland have a Medical Officer attached to the Privy Council, and having, like Dr. Simon, a staff of Medical Inspectors?

Before concluding the subject of State Medicine, we are rejoiced in being enabled to chronicle the appointment of a Professor of Hygiene in University College, London. Dr. Corfield, the recently-appointed professor, is a distinguished graduate of the University of London, and, we doubt not, will do his utmost to justify his appointment to so important a chair. Although hygiene is so important a department of medical science it does not enter into the *compulsory* curriculum of the British Medical Schools. There are now three Professorships of Hygiene in the United Kingdom—namely, those of the Royal College of Surgeons, Ireland, University College, London, and the Army Medical School at Netley. Very soon we hope to see a lecturer on hygiene in every medical school in the British empire. The celebrated Pettenkofer has recently been appointed Professor of Hygiene at Munich by the Bavarian Government.

VACCINATION.

Small-pox has been styled the type of contagious diseases. It is one of the most loathsome and fatal affecting man. Yet its history shows that this malady is most amenable to prophylactic treatment. Were it not for the great discovery of the immortal Jenner it is certain that small-pox would still be one of the most common of our diseases; and if vaccination were universally carried out small-pox would soon become a thing of the past. In most countries the children of the upper and middle classes are properly vaccinated; but the operation is often either not at all or imperfectly performed in the case of the children of the lower sections of society. In Ireland the poor law medical officers pay great attention to the vaccination of the children of the poor; and the result is, that the deaths from small-pox have fallen from 6,000 or 7,000 annually to nearly *none*. There are still to be met with physicians who doubt the value of vaccination; to those we would recommend the study of the history of small-pox in Ireland.

In England the deaths from small-pox still number 5,000 or 6,000 a-year, although the country is under the operation of a "Compulsory Vaccination Act." Energetic steps should be taken to lessen this fearful sacrifice of human life from one of the most preventible of diseases. We fear that vaccination is not properly performed in a large proportion of the cases, and that small-pox is merely kept in check—not eradicated. With respect to the value of vaccination, we cannot do better than quote the following extract from the last annual Report of the medical officers of the London Small-pox and Vaccination Hospital:—

"Vaccination has naturally occupied a large share of our attention during the last five years, and it is satisfactory to be able to state that our experience of the late epidemic, and the careful study of the 8,000 cases of small-pox which it has brought under our care, has in no degree diminished our confidence in its value. The opinion which, early in the course of the late epidemic, we felt it our duty to express on vaccination, neither requires qualification nor admits of limitation. "Although it has not entirely fulfilled the sanguine anticipations of its earlier advocates, it is the greatest boon which was ever conferred by man upon his species. Properly performed, with good active lymph, and with not less than four punctures producing vesicles, and these running the course so minutely and graphically described by Jenner, and leaving not less than four typical cicatrices, vaccination robs the most fatal and acute disease known in this country of its malignity, and reduces the mortality of

small-pox from 35 per cent, or even a higher rate, to less than 1 per cent."

Whilst we are firmly convinced that vaccination has been productive of the happiest results to mankind, we are still not blind to some disadvantages attendant upon the practice, but happily they are not altogether irremediable. These disadvantages are:— firstly, the danger of introducing along with the vaccine matter the virus of syphilitic or skin disease into the systems of children; and secondly, the use of effete lymph. To protect children from these sources of danger it has been proposed to employ "animal vaccination," that is, to vaccinate with lymph taken directly from the cow. In a paper^a read by Dr. Blanc at the last meeting of the British Medical Association, this matter was very fully treated. We quote from it the following paragraphs, and we would recommend all who are interested in the subject of vaccination to read the whole paper:—

"*First inference.*—Direct inoculation from the cow, in other words, 'animal vaccination,' is, according to the testimony of Jenner and others, a most perfect and lasting protection against small-pox.

"If we now examine the results of vaccination in the first years following its discovery, we shall no longer find the same complete immunity as when animal vaccination was the agent, but yet results far superior to those observable as we gradually depart from the original source.

"In the Report of the Royal Jennerian Institution, 1806, we find 'that the Medical Council are fully convinced that the failure of vaccination as a preventive of the small-pox is a *very rare occurrence.*' In the Report of the Royal College of Physicians on Vaccination, 1807, it is stated 'that the opinion that vaccination affords but a temporary security is supported by no analogy in nature, nor by the facts that have hitherto occurred; although the experience of vaccination be only of a few years, yet the same disease contracted by the milkers of cows in some districts, has been long enough known to ascertain that in *them at least* the insusceptibility to the small-pox contagion *does not wear out by time.*'

"*Second inference.*—A few cases of post-vaccinal small-pox were noticed as soon as 'Natural animal vaccination' was superseded by the use of

^a Since republished in a pamphlet form—"Compulsory Vaccination; an Inquiry into the present Unsatisfactory Condition of Vaccine Lymph, and a Remedy proposed." By Henry Blanc, M.D., Superintendent of Vaccination, Western Circle, Bombay. London: Churchill. 1869.

humanized lymph; but they are still rare, for the following reasons:—
1st. Greater activity of the lymph, which had not as yet undergone many generations. 2nd. The short time that had elapsed since vaccination was performed.

“Let us now pass to the year 1819. We have a very valuable report by Mr. Cross on an epidemic of small-pox that prevailed at Norwich during that year. Mr. Cross observed attentively 112 families, forming a total of 603 individuals; of the 202 who suffered from small-pox, only two were from among the vaccinated. The number of vaccinated persons was 91, the average of those contracting small-pox was therefore only 2·10 per cent.

“I will now seek further proofs in the records of the London Small-pox Hospital, as given by that very distinguished surgeon, Mr. Marson, who, by carefully arranged statistics, extending over a period of thirty years, has been able to arrive at some very important conclusions, and to lay down rules of vital importance to the subject we are now considering. In the article on Small-pox, in Reynold’s ‘System of Medicine,’ p. 271, Mr. Marson says: ‘From this period (1836) cases of small-pox after vaccination have kept gradually increasing in numbers until they now amount to four-fifths of the admissions into the Small-pox Hospital; thirty years since, from 1835 to 1845, the admissions of patients into the Small-pox Hospital were forty-four per cent. of small-pox after vaccination; from 1845 to 1855, 64 per cent.; from 1855 to 1865, 78 per cent.; and during the two years 1863, 1864, 83 and 84 per cent. respectively.’

“These numbers speak for themselves. Allowance being made for increase of population, and for the more extended practice of vaccination, we still find an increasing average quite independent of these natural causes. Vaccination is not practised to the extent we might suppose. Dr. Seaton and Dr. Sanderson in their report mention the very large proportion of unvaccinated children to be found all over the country, on an average from 20 to 50 per cent.; neither must we place too much reliance in the working of the Vaccination Act. Mr. Simon, in ‘Papers,’ &c., referring to it, says, ‘The stimulus that was given to early vaccination by the new law in the first year of its working became in the second year less effective than in the first, and in the third less effective than in the second.’

“*Third inference.*—From perfect immunity in those inoculated with spontaneous cow-pock, we pass from a few rare cases of subsequent small-pox to a small per-centage, gradually but steadily increasing, until in 1864 it reached the very high average of 84 per cent.!

“Let us now consider the second proof—namely, increasing fatality. If vaccine lymph has not degenerated, nor lost its anti-variolic power, between a hundred persons vaccinated on a certain date, and another

hundred, say twenty years later, we should find no difference in the deaths among the two series. Is this the case? No.

"We first have Jenner's milkers of cows, or animal vaccination. *No resusceptibility, no cases, no fatality.*

"In 1806 and 1807, resusceptibility is a very rare occurrence.

"In 1819, slight increase of post-vaccinal small-pox.

"Epidemic of Norwich, no fatality. Epidemic of Scotland, fatality 1 in 310.

"From 1816 to 1820, France, fatality 1 per cent.

"From 1823 to 1827, Copenhagen, fatality 1 in 132.

"1828, Marseilles, fatality 1 per cent.

"1834, 1835, Carniola, fatality $4\frac{2}{3}$ per cent.

"1834, Vienna Hospital, fatality $12\frac{1}{2}$ per cent.

"1835, Vienna, fatality $11\frac{1}{2}$ per cent.

"Mr. Marson, in his article on Small-pox, says: 'During that period, from 1806 to 1835, the fatality among the vaccinated was 6·56 per cent.*' Out of a large number of cases of small-pox after vaccination—viz., 1,958 admitted into the Small-pox Hospital during the years 1863 and 1864, small-pox having been epidemic in London throughout those entire years, the mortality after vaccination shows a very considerable increase—viz., from 6·56 per cent., as given in Table IV. for the twenty years from 1836 to 1855, to a mortality of 9·9 per cent.'

"With reference to the increase, Dr. Seaton, in his excellent 'Hand-book of Vaccination,' states (p. 241):—'But the proportion of deaths also from natural small-pox in the Hospital in the same year instead of being 35 per cent. of the cases, mounted to 47 per cent.; so that the difference was due not to the falling off in the prophylactic power of vaccination, but to the greater intensity of epidemic influence. The varying intensity of epidemic influence must be kept in mind.'

"To a certain degree this is perfectly correct, but it applies only to those who were vaccinated with a lymph that had lost its anti-variolic power. Dr. Seaton himself corroborates this inference.

"In his first note, page 241, *loc. cit.*, he remarks, 'Among the thoroughly vaccinated patients in 1853, the death-rate was under 1 per cent.' Why, may we well ask, were not these also affected by the greater virulence of the epidemic? Had the thoroughly vaccinated formed the majority, Dr. Seaton's argument would have been correct, but as they form but a very trifling percentage of the whole, they simply confirm the fact of an increased fatality among the vaccinated in general. Calculating on the average of sixteen years, from 1836 to 1851, Marson's Table IV., 'Transactions Med.-Chirurgical Society,' shows that even at that date the *thoroughly* vaccinated gave only a percentage of 8·6,

* From 1855 to 1858 the fatality rose to about 8 per cent.

leaving consequently *more than 91 per cent. improperly protected*. If, with a constantly increasing resusceptibility, we have at the same time a gradually increasing fatality, the evil is two-fold, and the consequences are of such importance as to demand our most serious attention. A few more facts, most of them taken from the records of the London Small-pox Hospital, will complete the essential elements of this very important question. From 1800 to 1815, 6,443 persons died of small-pox in London; and although the vaccinated, to the amount of many thousands, or even tens of thousands, were thus tried in the severest manner, they remained perfectly proof against contagion.

"In 1819, nineteen cases of post vaccinal small-pox were admitted into the London Small-pox Hospital; in 1825, 147; from 1826 to 1832, 619; from 1833 to 1839, 900; from 1836 to 1851, 2,784; from 1855 to 1865, 5,622.

"The fatality considered in the same series, namely, from 1819 to 1865, is the following:—0, 11, 40, 60, 191, 268, and 459. If we now take this last number, '459,' representing the fatality in the London Small-pox Hospital, from 1855 to 1865, among the vaccinated, and compare it with '528,' representing in the same establishment, and during the same lapse of time the fatality among the unvaccinated, it gives for the vaccinated a mortality of only 69 less than for the unvaccinated.

"*Fourth inference.*—Among those protected by spontaneous cow-pox, *no fatality*. Trifling during the first years following the introduction of vaccination. Since then, a gradual alarming increase. What does this teach us? To follow the example of those who first practised animal vaccination; do as the milkers of cows did, and seek for a perfect protection in a return to the prophylactic in all its purity.

"The remedy I propose is simply a return to the practice from which Jenner derived his great discovery; it is nothing else than science applied to a natural fact, and reason and knowledge once more perfecting a great sanitary measure. Vaccination direct from the heifer, or Animal Vaccination, as it is called, is no novel or untried system. For many years it has been established in Naples, Paris, Brussels, St. Petersburg, Vienna, Berlin, Marseilles, &c.; and everywhere, after a hard-fought battle against apathy and routine, it has acquired an increasing prestige, and is now accepted by the learned and the people at large as the purest expression of Jenner's valuable gift to mankind. The lymph used by animal vaccinators is spontaneous cow-pox, transmitted in all its purity through a succession of heifers; it has never passed through the human body. The vaccine lymph I have myself transmitted through a succession of heifers, was found last July by Dr. Warlomont, the Director of Public Vaccination in Belgium, on a cow in a farm near Brussels."

Dr. Blanc's observations are worthy of the most serious attention, but he appears to us to have overstrained his arguments. He shows that 84 per cent of the patients admitted into the London Small-pox Hospital had been vaccinated, and argues therefrom that human vaccine lymph is losing its anti-variolic power. We cannot, however, accept his conclusion from the data which he places before us, for he should have shown us the numbers of the vaccinated and unvaccinated sections of the population who contribute the patients admitted into the Small-pox Hospital. For some years after Jenner's discovery the percentage of the population vaccinated must have been very small, and therefore the unvaccinated must have furnished, by reason of their mere large majority, by far the greater number of victims to small-pox. At present nearly the whole population is vaccinated, and, consequently, a large percentage of the cases of variola must be post-vaccinal, and varicelloid, too.

Dr. Blanc should take into account the fact that a very large proportion of cases of post-vaccinal small-pox is the result of imperfect vaccination. Were animal vaccination in general use the operation might be occasionally carelessly or imperfectly performed too, and, therefore, as in the case of ordinary vaccination, there would be numerous failures.

In comparing the merits of the two forms of vaccination, great care should be taken in employing the statistics which show the result of each system. When good human lymph is employed, and the operation is carefully performed, I have no doubt but that the subject of it is rendered all but completely insusceptible of small-pox.

Dr. Seaton and Dr. Buchanan assert, from their observation of 50,000 children, in 1862, that one kind of vaccination is thirty times more protective than another; but they also assert that the worst form of vaccination is forty-seven times better than none at all. These observers found that of every 1,000 children without any mark of small-pox, 360 had small-pox scars; whilst of 1,000 children who had evidence of some kind of vaccination only 1·78 had traces of small-pox. The children who exhibited the least evidence of vaccination were those who made up the greater proportion of the post-vaccinal cases. It is impossible to reconcile the theory of the decay of human vaccine lymph with the facts adduced by Drs. Seaton and Buchanan. In Ireland, where small-pox has been extirpated by vaccination, human lymph is alone employed.

There have recently appeared in the English journals several protests against the law rendering compulsory the vaccination of children. A woman complained to a London police magistrate that her infant was suffering from a serious pustular eruption which she believed to be the result of vaccination. Two or three medical men publicly state that in their opinion the operation is a most pernicious one. There is an "Anti-Vaccination League," and a journal styled the "Anti-Vaccinator" has recently been established. A London coroner's jury held an inquest concerning the death of an infant, and returned a verdict affirming that it had died from the effects of vaccination.

It is to be feared that the insensate outcry raised against the vaccination laws by ignorant, deluded, or eccentric persons may have the effect of inducing many people to doubt the utility of vaccination. In Ireland the people have hitherto, as a rule, exhibited a most intelligent appreciation of the advantages arising from the practice of vaccination; but it is to be feared that the re-publication of anti-vaccination manifestoes in the Irish journals may possibly shake the confidence of many persons in prophylactic measures. Indeed, we are informed by several dispensary physicians that there is already distrust creeping into the minds of many persons amongst the humbler classes—the fevers, skin diseases, and even diarrhea contracted by recently vaccinated children being attributed by their parents to infection introduced along with the vaccine lymph into the bodies of the infants.

It is probable that no serious anti-vaccination agitation will gain ground in Ireland; but still it is most undesirable that a feeling of doubt as to the value of vaccination should exist at all in a country where the practice has hitherto proved so great a success. In Ireland small-pox was once a fearful scourge. During the ten years ended in 1841, no fewer than 58,006 persons perished from small-pox in Ireland, and many times that number were disfigured for life by the ravages of the disease. During the decade ended in 1851 the deaths from small-pox numbered 38,275, and in the following decade the deaths from this disease amounted to 12,727. In the year 1866, 186 deaths occurred, and in 1867 only 20 persons lost their lives from small-pox. Last year 19 persons died from small-pox.

Thus it will be seen that small-pox has almost literally ceased to exist in Ireland, and the question arises, by what means was so desirable a consummation effected? We have no hesitation in

asserting that it was by vaccination. General hygienic measures lessen, no doubt, the mortality from small-pox, as well as from all other zymotic diseases; but we are firmly convinced that the "stamping out" of small-pox in Ireland was almost wholly effected by the admirable manner in which vaccination has been conducted by our physicians. The Irish poor-law medical officers constitute perhaps the most effective body of sanitarians in Europe. They number about 800, and nearly their whole time is occupied in the discharge of their duties under the poor-law commissioners. It is part of their business to vaccinate the children of the poor; and that they do their work thoroughly is evident from the following facts:—

During the year 1867 the number of children born in Ireland, and whose births were registered, amounted to 144,318. During the same period the poor-law medical officers vaccinated 131,426 children. The remaining 13,822 were either the patients of private practitioners or remained unvaccinated; but some allowance must also be made for the deaths of very young children.

In studying the statistics of small-pox in Ireland, it is impossible not to be struck with the fact, that just in proportion to the efforts made by the poor-law medical officers to carry out vaccination, so have the cases of small-pox diminished.

This year some deaths from small-pox took place in Balla Union, near Castlebar, in the county of Mayo. There was an epidemic of the disease in the locality, but it was of a mild type, for but three of the sixty-seven persons affected died. There is almost conclusive proof that the epidemic was the result of small-pox inoculation, and a well-known operator in that criminal trade—a resident in the district—is presumed by the police to have been the guilty manipulator. Last year a child who had been inoculated by this person died of small-pox. It must be admitted that many of the children who caught small-pox at Balla had been vaccinated; but it would appear that by some unfortunate mischance—of very rare occurrence in Ireland—the vaccine lymph employed in the cases was effete.

Wherever vaccination is strictly enforced, there small-pox is sure to disappear sooner or later. This is the case in Baden and some other states where laws rendering vaccination compulsory have been for years in force. In Ireland, as we have seen, small-pox has nearly ceased to exist, owing to the general practice of vaccination, and to the perfect manner in which that operation is

performed. There are, however, a large number of children still unvaccinated, and it is to be hoped that the law will be vigorously put in force against the parents or guardians of infants who refuse or neglect compliance with the operations of a most beneficent law. The penalties imposed when convictions are obtained appear to be, in general, ridiculously small, the fine being often only a penny. The vigorous enforcement of the vaccination laws, and the energetic prosecution of persons practising inoculation, would soon cause the small-pox to disappear from every part of the United Kingdom.

And here we cannot avoid saying a word in praise of the dispensary doctors. Were it not for their efforts, small-pox would now be as rife in Ireland as it is in England. In checking the spread of fever and other zymotics, they are equally zealous and active, though from the nature of things, not so successful. Sickness is the most common cause^a of pauperism; therefore, the poor-law medical officers, by diminishing the amount of preventible disease—as they undoubtedly do—diminish also the amount of pauperism, and lessen the burdens imposed upon the ratepayers.

PREVENTION OF VENEREAL DISEASE.

Public opinion in Great Britain and Ireland is rapidly coinciding with the views of those sanitarians who advocate legislative means for the purpose of arresting the spread of contagious venereal diseases. A few years ago he who would venture to suggest the desirability of state interference in such a matter would be scouted by the non-medical section of the community; but the enormous physical evils which result from untrammelled prostitution are now so patent that all save the most prejudiced admit that they demand a prompt remedy. If the non-recognition of the “social evil” could tend in any way to lessen the vice, there would be some excuse for those whose over-prudishness leads them to object to any interference with prostitutes on the part of the state. But the history of all nations shows that both the moral and physical evils arising from prostitution have been increased instead of lessened by allowing the unhappy creatures who ply this dreadful trade to remain free from the *surveillance* of the authorities. Efforts have been made from time to time in most civilized countries to eradicate prostitution, but not only did all those attempts prove failures but

^a 72 per cent. of pauperism in England is the result of the sickness and deaths of the “bread-winners” of the poor.

they actually, in many instances, induced a general corruption of morals. In the year 1845 all the brothels in Berlin and others of the large Prussian towns were forcibly closed by order of the king, and public prostitution was proscribed under severe penalties throughout the kingdom. Very soon the results of this system became apparent. Illegal prostitution rapidly spread. The public morals became worse than ever. The number of illegitimate children increased. There appeared to be a general profligacy pervading all ranks of society, and finally venereal disease became more virulent and widespread. After six years' experience of this method of stamping out prostitution, the king was prevailed upon to repeal his edict and to allow the re-establishment of brothels under the *surveillance* of the authorities. Since 1851 women openly leading unvirtuous lives in Berlin are placed under strict control, and they are periodically inspected by medical men appointed for the purpose. The same system prevails in most parts of the continent. Berlin appears to be a very hot-bed of prostitution, for, according to Dr. Straysma, it contains this year (1869) 23,855 unfortunates, or 11 per cent. of the female population between the ages of 14 and 60.

The Contagious Diseases Act of 1866 was passed with the view of protecting the soldiers and sailors from venereal disease. Certain districts are specified in the Act, within the limits of which women who are known to be prostitutes are placed under the supervision of the police, and are obliged to submit to periodical medical examinations. If found to be suffering from venereal disease they are sent to hospital and detained there until cured. This system has been for some time in operation at the principal military and naval stations in England, and with the best results, as has been clearly shown in the Report of the Select Committee of the House of Lords on the "Contagious Diseases Prevention Act." At Sheerness, which formerly was notorious for the amount of syphilitic disease prevalent in it, the most unexpected results were obtained, the disease being all but absolutely eradicated. Last year, in every military station placed under the operation of this Act, there was a great diminution of the number of cases of syphilis as compared with former years, and with exclusive stations. For example, in Dublin the admissions into hospital of soldiers suffering from "venereal sores" were 138·83 per 1,000 men in garrison; whilst at Woolwich the admissions were only 46·57 per 1,000 men.

Dr. Evans, of Portsmouth, states that whilst 50 per cent. of the women *examined* at Gosport in 1867 were found diseased, in July last only 1 in 7 were found affected.

On the 11th August last the Royal assent was given to the Contagious Diseases Prevention *Bill* of 1869, which is therefore now an *Act*. The operations of the Acts of 1866 and 1869 are now in force at the following places:—Gravesend, Maidstone, Winchester, Dover, Walmer and Deal, Canterbury, Colchester, Devonport, Portsmouth, Aldershot, Chatham, Plymouth, Sheerness, Shorncliffe, Southampton, Woolwich, Windsor, Cork, Queenstown, and the Curragh. The area of each station is extended from a radius of 5 miles to that of 15 miles.

The Curragh camp will soon be placed under the operation of the Act, and adequate hospital accommodation is now being provided for the females who may be found diseased.

We trust that the operations of the "Contagious Diseases Prevention Acts" may be extended to the civil population of these countries, amongst whom they would prove as beneficial as they have already in the case of soldiers and sailors. In the interests of the unfortunate women, as well as of the whole community, we express this hope. Those engaged in carrying out the workings of the Act assure us that it has been productive of moral as well as physical benefit to these unhappy creatures, many of them having, under the influence of hospital discipline, been reformed and restored to their friends. In Japan, where prostitution is a recognized though not respectable occupation, those engaged in it are placed under police supervision; and we learn from an interesting Report, prepared by Mr. George Newton, a surgeon in the Royal Navy, that the Japanese Government has recently established a lock hospital at Yokohama, and provided it with 150 beds. Here the women are compulsorily examined and detained if found to be diseased. When we find such a State as that of Japan adopting a system of compulsory examination of prostitutes, and providing for their treatment so large an hospital, we surely have a right to expect our Government to do something to prevent the spread of the most loathsome of diseases amongst us!

On this subject we cannot do better than quote part of a forcible article on the limitation of contagious diseases which appeared in a recent number of the *Medical Press*:—

vast mischief. Medical practitioners admit the frequency of such affections amongst their patients, whether poor or rich. This may be a difficult matter to prove statistically, but there is no difficulty in showing that in a garrison of 4,967 in Dublin, out of 303 men in hospital, 151 are suffering from the disease in so severe a form as to necessitate their confinement, while numbers suffer from later and slower effects without being compelled to seek hospital advice. It appears from the records of the Westmoreland Hospital that the infecting sore is prevalent in Dublin, that few escape subsequent contamination, and that many women, though suffering, continue their mode of life for weeks while in this condition, causing incalculable mischief amongst all classes. The number known to the Dublin police, though not under any kind of surveillance, has been—For 1867, 1,047 living in 161 houses; for 1868, 967 living in 185 houses. This for Dublin represents a large proportion, when it is considered that these are such only as absolutely are notorious, hundreds representing the “clandestines” of M. le Fort are scattered through the city, but all at liberty when diseased to pursue an avocation which renders them dangerous not only to the existing but to the future and innocent generation. Though at first sight it may seem repugnant to our feelings to go the length of continental nations in their efforts to limit the spread of the disease by restraining individual liberty, and submitting these contagion centres to compulsory medical treatment and cure in hospital, the good effect of the Contagious Disease Act has already shown itself remarkably at Aldershot, where statistics prove that, in a strength of 15,000 men, the admissions on account of such diseases for the week ending March 12th, 1869, were but 22, whereas, in Dublin, amongst 5,000 men, the admissions for the same period were 49, while, on the 26th March, 1869, the number of men in hospital out of 4,679 in garrison, was 151 from this disease alone; in addition, the last Parisian statistics show that where no restraint or surveillance is exercised, the proportion of diseased women is one in three, while in the legislated for, it is reduced to one in seven. We can conceive no stronger argument for grappling with the social evil, and endeavouring, by active legislative interference, at least, to restrain the extension of a disease which not only contaminates the recipients for an unknown period, but also their offspring, apart from the more selfish financial consideration of the cost entailed by the loss of service amongst the mili-navy—so well shown by the fact that, from these diseases alone, a number is annually rendered ineffective, equalling the whole military force of the United Kingdom, for an entire week, and in the navy, equalling 586 men per day, or the compliment of an iron-clad.”

A writer in the current number of the *Quarterly Review* estimates the number of regular prostitutes in the United Kingdom

at 46,000, and of "occasional prostitutes" and prostitutes of a "superior class" at 322,000.

Whilst the *Lancet* and other influential journals strongly advocate the extension of the provisions of the Contagious Diseases Prevention Act to the civil population, the proposal finds no favour in the eyes of Mr. Simon, the medical officer of the Privy Council. His reasons for differing on this subject from the great majority of his professional brethren are fully stated in his annual report for 1868, published in September last.

We have received the following letter from Dr. B. F. MacDowell, which illustrates very forcibly the danger to which the civil population of Dublin are exposed:—

"28th Sept., 1869.

"I have no hesitation in expressing my belief that venereal disease prevails to a very great extent in Dublin at present, and I consider the extension of the 'Contagious Diseases Act, 1869,' for the protection of the civil population in large cities to be a question of great and pressing importance. In my practice at 'Mercers' and the Lock Hospitals I find that almost all the sores met with although pus-secreting and non-indurated, as a rule, are nevertheless 'infecting' in their character, so that a large percentage of persons attacked with the primary disease suffer also from the constitutional effects of the contagion. With such a large number of contagious centres as are known to exist in this city the amount of mischief done to the health of the public is almost incalculable. Some of the most severe cases of constitutional syphilis which I have had under my observation in the last six years may be seen in the wards of the Lock Hospital at the present moment. Many of these cases will require the most skilful treatment to rescue them from the depressing influence of the poison. *I saw no cases of such severity in the hospitals 'St. Lazare' and 'Lourcine,' in Paris, in 1867; and in the London Lock Hospital, where, through the kindness of Mr. Lane and Mr. Gascoyne, I saw the patients, there was the most marked difference in the severity of the cases which were admitted on the 'voluntary' system on the one hand and the 'compulsory' on the other—the former being uniformly severe whilst the latter were comparatively mild.*

"I am glad you have taken this subject up. Prostitution is a great evil, but one that cannot be remedied by attempting to ignore its existence—the time has now come when it should be dealt with by the legislature.

"In the Lock Hospital here there is ample accommodation for the increase of patients which would at first take place consequent on the exercise of the provisions of the Act, so that an increase to the present grant for a time is all that would be necessary."

CHOLERA VIRUS.

After long disputation, it now appears to be generally admitted by sanitarians that cholera, small-pox, measles, and most other zymotics are each produced by the introduction of a specific virus, or *materies morbi* into the system. The nature of these viruses has yet to be determined. The term *zymosene*, or *zymotocene*, proposed to be applied to them, is open to the objection that it might lead persons to infer that all the zymotics are produced by the one agent. We can hardly doubt but that the virus of small-pox is an entity, and that it is as distinct from the virus of measles or whooping-cough as a cabbage is from a potato, or a horse from a cow. The nature of the virus of small-pox and of other zymotic diseases is perfectly unknown. The germs of these maladies have been carefully sought for by pathologists, naturalists, microscopists, and chemists, but as yet with almost negative results. Dr. Beale employed in researches of this kind a microscope so powerful that were it possible to look at a man through it he would appear to be twice the height of Mont Blanc; yet with lenses of this high magnifying power no difference could be detected between the cells composing vaccine lymph and those forming normal chyle. It is only a short time since it appeared probable that the virus of contagious diseases would be found in the domain of the mycologist. In 1867 Professor Hallier, of Jena, published an essay entitled *Der Cholera-contagion: Botanische Untersuchungen, Aertzen und Naturforscher mitgetheilt*, in which he stated that he had discovered a fungus which appeared to be the germ of Asiatic cholera. In 1866 Hallier found that the dejections of cholera patients contained large numbers of minute fungi and their spores. On experimenting with these vegetable organisms he found that they propagated with great rapidity. When placed on pieces of intestine or of muscular tissue, they quickly disorganized them. These fungi were found to require a higher temperature for their perfect development than that of the atmosphere of Germany; hence Hallier concluded that they were indigenous to some such climate as that of India. It is noteworthy that the English physicians who first came in contact with cholera in India termed it the rice disease, because it appeared to be produced by the use of that food when in a diseased condition from blight or fungus growths. The fungi obtained from cholera evacuations were engrafted on rice grown under conditions as nearly as possible

equal to those under which the plant is developed in its native habitats. Professors Thomé of Cologne, and Klob of Vienna have also announced that they discovered in the stomachs and intestines of cholera patients minute fungi, which multiplied rapidly. These little organisms caused severe choleraic symptoms to be produced in the case of several species of animals into the bodies of which they had been introduced.

Dr. Salisbury, an American mycologist, has for several years past been engaged in attempts to discover the *materies morbi* of contagious diseases, and he has described various fungi, each of which he believes to be the cause of a disease. A year ago there were great expectations formed relative to the fungus theory of disease, but very recent researches have tended to throw doubt on the accuracy of the conclusions of Hallier and Salisbury. In a recent number of the *Berlin Kl. Wochenschrift*, Dr. Lissauer describes his experiments with *penicillium*, and concludes from them that fungus is not a cause of contagion, and that its presence is a mere accident. He differs from all the more important conclusions arrived at by Hallier and Salisbury. Lissauer obtained *penicillium* from vaccine lymph, and subsequently from the cut surface of a lemon; but the fungus failed to produce vaccinia in a calf. It is stated by several distinguished mycologists that Hallier's cholera fungus is a European species; and certainly, if the statements relative to it made by Hallier and others had been founded on fact, the nature of the cholera virus would have been ascertained ere this. At the present time, we think it may be safely stated that the fungus theory of contagion remains unproved.

Although the cause of cholera remains unknown, the contagious nature of the disease and the various channels by which it is communicated appear to have been very clearly ascertained. Cholera, like all the diseases of its class, may be fairly met with hygienic weapons. "It cannot," says Mr. Simon, the medical officer of the Privy Council, "be too distinctly understood that the person who contracts cholera in this country is, *ipso facto*, demonstrated with almost absolute certainty to have been exposed to excremental pollution; that that which gave him cholera was (mediately or immediately) discharged from another's bowels; that, in short, the diffusion of cholera amongst us depends *entirely* upon the numerous filthy facilities which we let exist, and especially in our larger towns, for the fouling of earth, air, and water; and thus,

secondarily, for the infection of man and whatever contagion may be obtained in the miscellaneous outflowings of the population."

On the subject of cholera the following observations, recently made by Pettenkofer—to whose investigations into the etiology of this disease we are so much indebted—will be read with interest:—

"In my opinion four conditions are essential in order to bring about an epidemic of cholera:

- "1. A specific germ.
- "2. Certain local conditions.
- "3. Certain seasonal conditions.
- "4. Certain individual conditions.

"I have not investigated the nature of the cholera germ as disseminated by human intercourse. I have only taken for granted that it exists in the intestinal discharges of persons coming from infected places. My own investigations have been chiefly confined to the second and third before-mentioned conditions. Hitherto I have considered the human subject only so far as he is the bearer of the infecting matter of cholera or of the germ of this matter; and have with facts contended against the pure contagionists, who declare that the infecting matter is produced by a process of multiplication within the bodies of those affected by the disease. My chief proofs of this have always lain in simple *facts* (independent of any theory) as to the spread of cholera over large districts. There are certainly *places* enjoying complete immunity from cholera, also *periods* of immunity. The development of epidemics, and the immunity of many places, is totally inexplicable, by the simple assumption of contagion from person to person. Observe the spread of epidemics along the course of railways and other ways of inter-communication. Nor are they to be explained by certain individual disposition of person (food, drinks, domestic arrangements, age, position, &c.); but the circumstances require, besides these, the existence of local and seasonal aiding causes, which have to be assumed.

"Are these in immediate relation to the cholera germ itself, or to the individual disposition? Facts speak in favour of the first opinion only. 1. Persons from an unaffected place going to an affected one, are attacked quite as numerously and as soon as the persons who constantly reside in these places. 2. Cases are on record where a person from an infected district conveys (in a way not clearly ascertained) infecting matter in a place enjoying complete immunity from cholera; and there, by means of his limited amount of infecting matter, infects a few persons who themselves had never been subject to the local conditions of an infected place, and therefore could not have had their individual disposition altered by it. Facts imperiously demand that we should consider

that the 'seasonal' and 'local' conditions are intimately connected with the cholera germ, although they may, in addition, be in a condition to act on the predisposition also.

"The infecting matter, in my opinion, is not a product of the human intestines, but of the soil. In so far as we consider the cholera germ of an organized nature, and capable of various degrees of development, it is possible—nay, very probable—that there may be various degrees of infection. The distinction between cholera 'germ' and cholera 'infecting matter' must be noted. The cholera germ stands in the same relation to the infecting matter as the seed does to the fully developed plant."

WATER IMPURITIES AND WATER ANALYSIS.

Very animated discussions have taken place during the present year relative to the impurities of water, the best methods of examining it, and the different diseases induced directly or indirectly by its use when in an impure state. The history of the last epidemic of cholera in Europe appears to us to prove clearly that cholera is very frequently communicated through the medium of potable water. Pettenkofer is somewhat opposed to this view, but the evidence which he offers is merely negative. Letheby doubts that water had much to do with the spread of cholera in London during the late outbreak, but the great majority of health officers of the metropolis hold an opposite opinion. In a recent elaborate report, prepared by Dr. A. M. Ballot, of Rotterdam, voluminous evidence is produced to prove that cholera was propagated throughout Holland chiefly by means of polluted water. Dr. Ballot's conclusions are as follows:—

"1. Our country is highly affected by the cholera at every epidemic, chiefly in those parts where they drink water directly from the rivers and canals, or from the ground saturated with sewerage matters.

"2. In places where rain water is generally drank the disease is by far less violent.

"3. Places where there is no other drinkable water but rain water, are not affected by the epidemic; the single cases occurring there are imported.

"4. When places affected by the cholera were supplied with pure water instead of the vitiated water the disease disappeared."

The use of ordinary hard water probably predisposes persons to contract cholera when the disease is prevalent; but water containing the actual virus of cholera is of course that by means of which the disease is chiefly propagated.

There is strong evidence to lead us to believe that typhoid fever is often propagated by means of potable water. Many epidemiologists believe that mere decomposing sewage matters in water are sufficient to produce typhoid fever in those who drink it; but it is far more probable that this disease is produced by a specific poison, and therefore, however bad water may be, it cannot produce typhoid fever unless it contain matter derived from the evacuations of a typhoid patient. The most recent contribution to our knowledge of this subject is a paper by Dr. Nourse, of Brighton, in the *Medical Times and Gazette*, June 12, 1869, in which he traces the cause of eleven cases of typhoid fever to the use of well-water containing sewage impurities.

The analysis of potable water is now a matter of the highest importance. There is reason to believe that absolutely pure water is, apart from its want of flavour, unfit for use. The proportion of mineral matter in water varies considerably—from one grain per gallon (70,000 grains) in the case of the Loch Katrine water, to more than 200 grains in some kinds of well-water. We have had considerable experience in the examination of potable waters, and we find that in a large proportion of the well-waters of Dublin and other parts of Ireland the proportion of earthy salts is excessive. In some cases we have found from thirty to seventy grains of sulphate of calcium, and from twenty to seventy grains of the chlorides of calcium and magnesium per gallon. The use of water containing large quantities of earthy salts cannot but exercise some effect on the mucous membrane of the digestive canal. In many cases we were able to account for persistent dyspepsia, and alternations of constipation and diarrhea, by showing that the persons so affected used extremely and permanently hard water. One of the worst specimens of water of this kind which we examined was taken from the pump of the Dublin University Club, Stephen's-green; it contained 185 grains of mineral matter per gallon. Although water containing excessive proportions of mineral matter cannot be considered wholesome, yet it does not produce any zymotic disease; it may, however, by inducing a loose state of the bowels, predispose persons to contract cholera when that disease is prevalent.

The organic matter found in water varies in proportion from half a grain to seventeen grains per gallon; on an average it constitutes two grains per gallon in potable water. Its composition varies considerably, and has not yet been accurately investigated. The old method of determining the amount of

organic matter consisted in burning the matter left on the evaporation of water—the loss was supposed to represent the organic, or combustible matter. This plan, though still in use, does not always or even generally afford accurate results, because the combined water of certain mineral salts is only driven off at a higher temperature than that employed in evaporating the water; and various saline matters—the nitrates and nitrites for example—are partly decomposed and lose weight at a red heat. Permanganate of potash parts readily with a portion of its oxygen, and its solution has been employed to determine the amount of organic matter in water; but this re-agent also is liable to give fallacious results, because different kinds of organic matter require different proportions of permanganate of potash solution to decompose them. Besides, several inorganic bodies decompose the permanganate solution. But even when the amount of organic matter is accurately ascertained the question arises:—Is it chiefly derived from an animal source, or is it nearly altogether of vegetable origin? Vegetable impurities in water, however undesirable they may be, are not likely to produce cholera, typhoid fever, or any of the zymotics, but matters derived from sewage may possibly contain portions of the ejecta of cholera or typhoid patients. The colour and flavour of water are not safe guides in forming an opinion of its purity. As a rule, the purest waters have rather a flat flavour; and very pure lake waters sometimes are coloured with peat, the tinctorial power of which appears to be very great.

Messrs. Frankland and Armstrong have introduced a new method of water analysis which, so far as the organic matter is concerned, yields results far more accurate than those obtained by the incineration or permanganate of potash processes. The principal improvement in this process is in the determination of the amount of nitrogen in the water, and the states of combination in which it exists. Nitrogen occurs in water as a constituent of nitric acid and nitrous acid, of ammonia, and of organic (albuminoid) matter. It is the albuminoid nitrogen which is most to be dreaded in water, and hence the determination of its amount is a matter of the utmost importance. Frankland and Armstrong destroy the nitrates and nitrites by deoxidizing them by means of sulphurous acid. The nitrogen, in the form of ammonia, is determined by a separate operation, and according to the elegant Nessler method. There now remains to be ascertained the amount of nitrogen present in a purely organic condition, *i.e.*, in the albuminoid form.

By burning the residue obtained from the evaporation of the water, according to the method employed in ordinary organic analysis, carbonic acid gas, water, and nitrogen are obtained. The quantity of nitrogen multiplied by 6·5, gives the proportion of albuminoid matter present in the water. According to Frankland the water of some wells do not contain one part of organic nitrogen in 100 million parts of matter; but the water of the Thames at London-bridge was found to contain 100 parts of organic nitrogen in 100 million parts. Water of pretty good quality supplied to London was found to include seven or eight parts of organic nitrogen per 100 million parts. Frankland's method has been subjected to much adverse criticism, but we believe that it is the best yet proposed. It has but one serious drawback—namely, that it requires very great manipulative skill, and apparatus which are not always possessed by medical men who devote themselves to sanitary science. In the case of the larger towns, where professional chemists are located, we have no doubt it will supersede the older methods. We should here mention that Wanklyn and Chapman have suggested adaptations of the ordinary ammonia test for the estimation of the organic nitrogen in water. What they propose may be easily carried out, and many chemists are now adopting their recommendations.

The amount of nitrates and nitrites in water is generally regarded as a measure of the degree of pollution from sewage. From the results of the experiments of Lawes and Gilbert, and Way, it would appear that the purest natural water may contain 0·224 grains per gallon of nitrogen in the form of nitric acid, nitrous acid and ammonia, and derived from atmospheric sources. Now, in some water there are found from five to ten grains of nitric acid and nitrous acid per gallon, and these large amounts are supposed to be derived from sewage. In the Dublin pump waters, which we examined in 1866, we found enormous quantities of nitrites and nitrates; and in a report on the examination of some of the Dublin well-waters by Dr. Apjohn and Mr. Leslie, and published in May last, it is stated that one specimen contained twenty-nine and a-half grains of nitric acid per gallon. The presence of nitrous acid shows that the oxidation of the organic matter in the water is not complete; therefore nitrous acid indicates a more dangerous state of things than is exhibited by the presence of nitric acid, the latter being nitrogen in a perfectly oxidized state. Dr. Frankland believes, as we do, that the presence of nitrites and nitrates

indicates that the water *had* been contaminated with animal refuse, and hence he uses the term "previous sewage contamination," qualifying it with a number indicating the probable amount of sewage which had been mixed with the water. This term has been objected to by Dr. Letheby and others, principally because, as they allege, it is calculated to excite unnecessary alarm in the public mind. Now, we believe that the term is wholly unobjectionable, because it expresses no fact; for however innocuous nitrates, nitrates and ammonia may be in water, it is evident that their constituents must at one time—and that not a very remote one—have entered into the composition of animal refuse. Frankland has shown that the addition of one part of rice-water evacuation from a cholera patient to 1,000 parts of water could not be detected by chemical analysis; may we not therefore infer that parts of the sewage impurities which pass into water remain there undetectable long after the other parts have been converted into nitrates, nitrates and ammonia? It is evident that the freer water is from such substances as albuminoid bodies, ammonia, and oxidized nitrogen, the less likely is it to contain the germs of zymotic disease. It may be said that impurities discharged into running water are soon oxydized and rendered harmless; this is true enough, so far as dead organic matter is concerned, but it may not be the case relative to spores and to the germs of disease, the nature of which we have yet to learn.

If the poison of zymotics consists of living fungi, or vegetable spores, it is probable that it would not be destroyed by the action of the charcoal contained in water filters. Nor is it likely that permanganate of potash or any of the other mineral oxidizing agents would affect it unless applied in such quantities as would render water undrinkable. A reliable method of destroying the virus of cholera and similar diseases contained in water, consists simply in boiling the liquid. Much doubt has recently been expressed as to the efficacy of charcoal filters. Our experience is favourable to their use as a means of removing dangerous dead organic matter from water. We have reduced the amount of organic matter in water from 3·40 grains per gallon to 0·2 grains by one filtration through a layer of animal charcoal $2\frac{1}{2}$ inches in depth. We have reason to believe, too, that the organic matter not removed by the charcoal was nearly, if not altogether, highly carbonaceous peaty matter—a substance likely to be perfectly innocuous. Should it be yet ascertained that the contagium of the

zymotics is dead organic matter, more reliance will then be placed in the power of charcoal and similar substances as purifiers of water. We may here remark that we have recently employed ferric acid in determining the amount of organic matter in water, and found it to answer in some respects better than permanganate of potash.

The numbers of the *Journal de Pharmacie et de Chimie* for February and March, 1869, contain a complete scheme for water analysis, which appears to be at once simple and accurate. It is proposed by M. Bobinet.

ARTIFICIAL FOODS AND AIDS TO DIGESTION.

Within the last few years a large number of food substances, designed for invalids, and preparations intended to aid the process of digestion, have been introduced, and appear to be now largely in use in these countries. Cod-liver oil may be regarded as the pioneer of these agents, and perhaps the most purely medicinal of them. Liebig's *extractum carnis* furnishes the invalid with the most concentrated form of animal food—one from which all indigestible substances is supposed to be eliminated. Coleman's essence of meat biscuits is strongly recommended to invalids. Very young children do not secrete ptyalin—the agent which converts starch into sugar—but in Spilling's "malt biscuits" infants have an available supply of soluble non-nitrogenous matters. Should infants exhibit the effect of defective nutrition, Morson's "saccharated wheat phosphates" supply the deficient bone materials; and if those fail we have Parrish's "chemical food" to fall back upon. Many persons do not secrete sufficient pepsine to convert their food into peptones and parapeptones, but the deficiency may be made good by the use of *poudre nutritive*, or pepsine powder. Perhaps the pancreas is not working satisfactorily—in that case why not at once employ the "pancreatine powder," which, according to the *Lancet*, is, "as a remedy for indigestion, vastly superior to pepsine," and which, it is also stated, "effects the digestion of cod-liver oil, solid fat, and food generally." To the stomachs of some persons fat is intolerable, and to these we commend "caraccatina," a preparation of cocoa, from which "all fatty matter is extracted." We suppose that Lowenthal's "chocolatine" is a somewhat similar preparation. Mothers who cannot supply maternal nutriment are urged to purchase "Liebig's food for infants," which, according to Dr. H. Barker, "resembles mother's milk as closely as possible." No doubt it does. For toothless persons we have a good mechanical

aid in Nye and Co.'s "small mincer," for "mincing the food of invalids, aged persons, and sufferers from weak digestion." Van Abbott manufactures a variety of foods—gluten bread, biscuits, and chocolate—suitable for diabetic patients. One of the most singular foods for the sick and delicate is "musculine-Guichon," a compound of "raw meat with cooling fruits." This article appears to be in much demand, and is useful when a raw meat diet is prescribed.

Besides Arnett's "Quinine ale," Hassell's "Flour of meat," and a large number of essences of flesh, we have numerous farinaceous preparations specially manufactured for "invalids and children." The latest novelty in this class of foods is the British Corn Flour, which is prepared from rice. According to Beaumont rice is the most digestible of aliments, and the British Corn Flour is therefore a valuable food for invalids. It has always appeared to us that the advantages of using rice-flour in the diet of invalids has been underestimated. A recent writer, Dr. Jules Cyr (a notice of whose work, *Traité de l'Alimentation*, will appear in our next number) says that rice farina mixed with milk and sugar, and flavoured with an aromatic, constitutes "a most agreeable aliment, very nourishing, and of easy digestion. The tired stomach and the irritable intestines generally readily tolerate this preparation. It is prescribed with advantage in derangements of the digestive organs."

DISEASED MEAT.

A very large number of oxen, sheep, and pigs die from natural causes, or are killed whilst suffering from serious diseases. As a rule neither country gentlemen and farmers nor their servants eat the flesh of such animals, and the carcasses are generally buried beneath fruit trees, or used for the purpose of augmenting the manure heap. But when animals die or are killed whilst diseased in the neighbourhood of towns, it is too often the practice to dispose of their carcasses to the butcher. We have reason to believe that there is not a large town in Ireland in which the carcasses of diseased animals are not constantly sold as food, not only to the poor, but even to the upper classes of society.

In Dublin there was no systematic inspection of meat until the year 1866, when at our suggestion three constables of the Metropolitan Police were appointed by the Police Commissioners to inspect the slaughter houses and markets. There are now seven police constables employed solely on this duty, and one of the Lord Mayor's clerks of the markets acts with them. They seize sick

animals, and the carcasses and the portions of the carcasses of animals that appear to be diseased. In every doubtful case, or where a prosecution of the owner is contemplated, we are called upon to examine the meat, and to certify as to its fitness or unfitness for human food. In the year 1868 the following quantities of meat were condemned:—

Beef,	-	-	-	74,852 pounds.
Mutton,	-	-	-	2,032 „
Veal,	-	-	-	1,680 „
Lamb,	-	-	-	50 „
Pork,	-	-	-	2,400 „
Bacon,	-	-	-	1,984 „
Total,				- 82,998 „

At our suggestion the Corporation have established a cattle sanitarium, in which milch cows suffering from diseases likely to affect the quality of their milk are detained until they recover or die. Animals affected with contagious diseases are also kept in this place until they recover or are slaughtered.

The Sanitary Act of 1866 has embodied in it the greater part of several previous Acts relating to public health. One of these Acts related to the inspection of meat, but owing to a defect in the wording of the Act of 1866, it is doubtful whether the clause relating to meat inspection applied to Ireland. The sanitary and police authorities acted since 1866 as if it did; but the question having been argued in the courts of law it became pretty evident that the clause did not apply to Ireland, not by design, but owing to the careless verbiage of the Act—the fault, we presume, of the “Bill drawer” of the Government. Early in August last a deputation of the Public Health Committee, accompanied by the writer of this report, waited upon the Under Secretary, Mr. Burke, and represented to him the importance of extending unequivocally all the provisions of the Sanitary Act of 1866 to Ireland. At Mr. Burke’s request we prepared a statement relative to the subject of diseased meat, and the means adopted for suppressing its sale in Dublin. In less than a fortnight afterwards we learned that a Bill to extend the Sanitary Act of 1866 had been rapidly passed through Parliament, and had received the Royal assent upon the last day of the Session. The public should feel greatly indebted to Mr. Burke for the promptitude which he exhibited in this matter; for never

perhaps was a sanitary measure so rapidly passed through the Legislature, and at a time, too, when other important bills were withdrawn for want of time to deal with them.

In September last, a butcher, named Daly, was sentenced to three months' imprisonment, without the option of paying a fine, by Mr. O'Donel, one of the Dublin Police Magistrates. The Justice expressed his regret that the Sanitary Act did not enable him to order hard labour in addition to confinement.

The public have reason to rejoice that the Commissioners of Police—John Lewis O'Ferrall, Esq., D.L., and Col. H. Atwell Lake, C.B., are animated with the strongest desire to repress the infamous traffic in diseased meat. They have given a general order to the whole police force to aid in the detection of diseased and putrid meat. Not alone in this matter, but in numerous other ways, the commissioners render the most efficient aid to the sanitary authorities.

We are convinced that the flesh of animals killed whilst suffering from inflammatory and contagious diseases, such as, for example, pleuro-pneumonia, is unwholesome. There are physicians who assert that the flesh of such animals is not unwholesome, and they say that neither chemical nor microscopic analysis can detect a poison in it. But it must be remembered that Lionel Beale—though he employed microscopes of the greatest power—could detect no difference between the cells, or elementary parts of malignant tumours and those of normal flesh—between the cells of vaccine lymph and those of healthy chyle. The chemical and optical characters of many organized structures may indeed present no appreciable difference, yet may the vital properties be wholly dissimilar. We have not yet isolated the *contagium* of cholera, or of small-pox; and therefore it is no sound argument in favour of eating diseased meat to assert that poison cannot be detected in it.

There are on record many cases of death and disease resulting from the use of meat which was not putrid, and therefore must have owed its poisonous qualities to disease. Dr. Letheby states that in the year 1860, 64 persons were affected with severe choleraic diarrhea after eating sausages made from the fore-quarter of a cow affected with pleuro-pneumonia; one of the cases terminated fatally. In 1866 two persons died and others suffered severely at Newtownards, in the County of Down, after eating veal not *obviously* diseased or unsound, and in which no poison could be detected by Professor Hodges of Belfast. Several cases of illness and death,

which could only be attributed to the use of diseased meat, have come under my own observation.

The disease which I find most prevalent in oxen is Steppe typhus, lung distemper, or epizootic pleuro-pneumonia—*lung enseuche*, of the Germans. It is not indigenous to Ireland. It was imported into this country in the year 1841, and has remained with us ever since. It is very contagious, and annually carries off, probably, about six or eight per cent. of the cows of the Dublin dairymen. I have examined at least 100 oxen affected with this disease, and I am quite certain that their flesh is unwholesome, though perhaps not to any important degree in the early, or congestive stage of the malady. I have repeatedly fed dogs upon the flesh of oxen in which the disease had far advanced, and invariably found that it produced severe diarrhea.

The *post mortem* appearances presented by bad cases of lung distemper are very remarkable. The muscles are very dark, sometimes nearly black. The flesh is soft and plastic, and in the worst cases the acid reaction of healthy flesh is replaced by an alkaline one. The lungs in the early stage are highly inflamed; they soon increase very much in size, and extensive adhesion between the visceral pleura and the costal pleura takes place. Hepatization of a large portion of the lung structure is the chief characteristic of the disease. Large masses of the lungs become almost as hard as wood, and present a mottled appearance not unlike that of some kinds of marble. The quantity of muco-purulent matter is sometimes very great; I have seen half a gallon of purulent fluid expressed from the lungs of a small cow. The most extraordinary morbid change in the lungs is the increase in size and weight. In some cases they grow to such an extent that they are forced far back into the abdominal cavity. The average weight of the lungs and windpipes of fourteen healthy bullocks experimented upon by Lawes and Gilbert was nine pounds ten ounces. We have often weighed the lungs of animals affected with pleuro-pneumonia, and found them to attain from twenty-five to seventy lbs. weight, and in one instance they weighed 101 lbs. It is difficult to believe that the flesh of animals, the lungs of which are several times the normal size and are filled with pus, can be wholesome food.

The milk of cows affected with vesicular epizootic, or foot-and-mouth disease (now epidemic in England and Scotland) has been clearly proved to be unwholesome. The strong digestion of pigs is not even able to overcome the bad qualities of this fluid, for Mr.

Evershed, the Government Veterinary Inspector, stated in September last that the milk of cows affected with "foot-and-mouth" occasioned a "great mortality amongst pigs." As the people of London were supplied with much of the same kind of milk, we hope that it did not prove quite so poisonous in their case.

Deaths from trichiniasis have occurred this year in Germany, Switzerland, and America. Last year two cases came under my own observation in Dublin.

POISONOUS DYES.

The feeling which induces people to keep off the *appearance* of old age as long as possible sometimes leads them into practices which shorten their lives. The use of dangerous hair-dyes is an example of this kind. Many hair-dyes are harmless; but the majority of those now in use are, to say the least, open to very grave objection. Silver salts are employed, but they irritate the skin and hasten baldness. The "hair restorers," which are described by the vendors as agents which maintain the colour of the hair, and restore it, if altered, to its former hue, are, in reality, slow dyes. We have examined several of them, and find that they consist, with few exceptions, of salts of lead (generally the acetate), and sulphur, with, of course, a little perfume. In some cases we have known them to be used for a long time without any apparent evil results; but we believe that in many instances these lead dyes act injuriously. Several cases of lead poisoning by saturnine hair dyes are on record; and during the present year Dr. W. Neftel, of New York, states in the *Medical Record* that he met with three very severe cases of lead palsy combined with vaginismus, which could only be attributed to the use of cosmetics containing lead.

A specimen of a colourless fluid used at the present time for the purpose of giving dark hair the fashionable, *i.e.*, yellow colour, was submitted to us for analysis. Very much to our surprise we found it to consist solely of peroxide of hydrogen, or oxygenated water. Curiously enough, chlorine, instead of bleaching hair, rather darkens its hue.

The *Bulletin de l'Academie Imperiale de Medecine*, February and March, 1869, contains communications from Dr. Ambroise Tardieu on the poisonous effects of the new dye termed *coraline*. He states that it should not be employed for the purpose of dyeing articles of clothing which are intended to be worn next the skin. The author had satisfied himself that this pigment was frequently

absorbed by the skin, on which it produced "characteristic eruptions." Dr. Tardieu also directs attention to the fact that aniline and others of the new dyes, and even cochineal red, often contain notable quantities of arsenic, mercury, and lead. According to Tardieu coralline red may be distinguished from the other red dyes by the following tests:—It does not dissolve in cold water; it gives up a little of its colour to boiling water, but it is rapidly and completely decolorized by boiling alcohol. It is not affected by alkalies, but acids precipitate the colouring matter in the form of brown flakes.

M. Roussin has also experimented with coralline red, and obtained results similar to those arrived at by Tardieu; but the conclusions of both are called in question (*Journal de Pharmacie et de Chimie*, August, 1869,) by M. Landrin, a veterinarian. This gentleman experimented upon some of the lower animals, and found that they did not absorb solution of coralline through their skins; and that this substance administered by the mouth and by the hypodermic method did not produce effects which would justify its being termed a poison. This is therefore the present unsatisfactory state of the coralline dye question.

The numbers of the *Journal of Cutaneous Medicine* for July and October, 1869, contain the particulars of several cases of dermatitis produced by coloured stockings.

POISONOUS PICKLES.

Poisonous substances are now seldom, if ever, employed for the purpose of colouring confectionary, but a dangerous metallic pigment is still used to give a bright green colour to pickles. Three years ago we examined, for the Sanitary Committee, a large number of specimens of pickles on sale in Dublin, and found that all possessed of a rich green colour contained copper. The pale coloured pickles are in general prepared in these countries, and the more inviting-looking, but less wholesome, bright green articles, are imported from France. Last July the Paris police authorities prohibited the use of copper salts in the preparation of preserved vegetables. Henceforth, French pickles will, we expect, be less coloured and more wholesome.

In the *Bulletin* for March 15th, 1869, we are informed by M. Chevalier that the French confectioners are not permitted to use aniline red for the purpose of colouring their wares.

DANGEROUS EMANATIONS FROM STOVES.

In the spring of the present year General Morin presented to the French Academy of Science a report on the dangers arising from metal stoves. Contrary to the opinion of Dr. Caret, the commission who acted with General Morin believe that wrought-iron stoves are injurious to health, and that the same objection applies, but to a far greater extent, to cast-iron stoves. Both kinds of stoves act injuriously by over-desiccating the atmosphere of rooms, and by producing large quantities of carbonic oxide and carbonic acid. The higher the temperature of the stoves the more injurious they are. Metal stoves might be safely used if lined with fire bricks, so as to prevent the metal from being heated to redness. It would be well, too, we think, to enclose in earthen tubes the iron pipes which are employed to conduct steam or heated air throughout our public buildings.

EFFECTS OF TOBACCO SMOKE UPON CHILDREN.

The *Revue de Therapeutique Medico-Chirurgicale* for 15th February, 1869, contains a paper on the effects of tobacco smoke upon children, contributed by Dr. E. Decaine. Having described his experience in relation to this matter, he concludes:—1. That the pernicious effects of tobacco smoke upon children are incontestable. 2. It produces palor, chloro-anemia, palpitations of the heart, diminution of the normal number of blood globules, and difficult digestion. 3. The ordinary treatment for chloro-anemia and anemia produces no effect so long as the habit of smoking is persisted in. 4. The children who are addicted to smoking exhibit a want of intelligence, and have a liking more or less decided for strong drinks. Children who abandon the practice of smoking before any serious organic lesions are produced speedily recover from disorders of the system, of which even traces do not generally remain.

In the last number of the *North American Review*, Hammond argues at great length against the notion that the practise of smoking tobacco produces much disease amongst adults.

PART IV.

MEDICAL MISCELLANY.

Reports, Translations, and Scientific Intelligence.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

Dr. M'CINTOCK, President.

Necrosis of the Femur.—DR. BARTON exhibited a specimen of extensive necrosis of the femur. From the size of the sequestrum, its peculiar position, and there being extensive accompanying osteitis, with corresponding constitutional disturbance, the amputation of the limb became necessary. The patient was under the care of Mr. Richardson, in the Adelaide Hospital, at whose request Dr. Barton brought forward the specimen. The disease was the result of an injury received two years before the present time. The man was 36 years of age, a cooper by trade, who had received a severe crush between two heavy barrels, which obliged him to quit work and go home, but he felt so much better after rest, that he proceeded out the following day, and walked a considerable distance. This was followed, on the next afternoon, with acute symptoms of pain in the limb, which necessitated his remaining in bed, where he continued for some weeks. The result was the formation of an abscess which was opened, and a sinus was left remaining at the upper and inner aspect of the thigh. This sinus remained open, discharging a small quantity of pus. During the course of the following year a small piece of dead bone made its escape. In September, 1867, the man was admitted to hospital for the first time, and a probe passed down into the sinus detected dead bone. There was another opening in the posterior portion of the limb, but no dead bone could be found there. After some time he returned to his work, at which he continued for many weeks. At the end of a year he was again admitted, when, from excessive discharge, increasing pain, and lameness, he was obliged to give up business. This was in the month of September, 1868. A careful examination of the diseased limb was then made. At the bottom of the sinus dead bone was distinctly felt to be loose. Pressure over the femur caused a gush of healthy pus from the opening. Examination

by the probe gave the most excruciating pain. In fact, to make a proper examination was impossible, so great was his suffering, the cause of which was explained subsequently. The probe, when passed into the lower opening of the sinus, came into contact with living tissue. No dead bone could be made out in this direction. Night sweats commenced, and the patient's health began to deteriorate from the copious purulent discharge. An attempt was made to remove the sequestrum; but it was found impossible to do so, and the operation of amputation was performed. Upon examination of the limb, a large sequestrum was found lying in an oblique direction from above, downwards and backwards, movable, indeed, but not upwards, and its lower portion lay exactly behind the popliteal artery, which impinged upon its very end. The femoral artery was immediately below the upper opening. Not only was there this difficulty as regards the removal of the sequestrum, but a condition of *chronic osteitis* at the lower end of the femur existed, which, while it accounted for the existence of pain which was suffered, would, of itself, necessitate the amputation. Dr. Barton exhibited a drawing, showing the condition of the bone at the time of removal. It had a deep dull red colour, was softer than natural, and the cancelli were filled with a cheesy, yellowish substance.—*January 9, 1869.*

Deformity of the Hand after a Burn.—DR. M'CLINTOCK exhibited the cast of a hand which had undergone an extreme amount of deformity in consequence of a burn in early life. The woman from whom it was taken was thirty-five years of age, and when two years old was extensively burned from her clothes taking fire. The cast was taken with the fingers in the utmost state of extension they were capable of, which, it would seem, was very limited indeed. The hand was somewhat smaller than its fellow. She had full and complete power of the muscles of the forearm, which was not at all atrophied. If the fingers were covered one would think it was the sole of a well-formed foot, so prominent had the metacarpophalangeal articulations become. The woman could flex her index finger and move the thumb a little, but these fingers could not be brought into contact; the other fingers were immovably flexed. Notwithstanding this disadvantage it was wonderful the amount of use which, through long practice, she had acquired of this hand. She was a domestic servant, and she could spin, milk, and wash, and had great power in the forearm, being able to carry a heavy weight.—*January 9, 1869.*

Pulmonary Tubercle; Hemoptysis.—DR. HAYDEN said the young man from whose body the morbid specimens before them were taken was twenty-three years of age, a draper's assistant, and was admitted to the Mater Misericordiæ Hospital under his care in an advanced stage of phthisis, with tubercular deposition in the right lung, and a cavity in the

apex. He had been ill for a period of twelve months, and he had spat blood on two occasions. The case was one of ordinary phthisis, except that the larynx was engaged, the patient being aphonic. He was put under ordinary treatment, and the only special symptom he exhibited was irritability of the stomach, which rendered it difficult to administer medicine or even food. On the 6th of January he saw the patient in his ordinary condition. He was then in bed and rather cheerful. At twelve o'clock on the night of that day he was suddenly attacked with hemoptysis. In a moment or two the resident pupil was at his bed-side, and found about a pint of dark-coloured blood discharged by the patient. The patient declared he was suffocating, and in five minutes he was dead. Dr. Hayden was prepared, on making a *post mortem* examination, to find the bronchial tubes injected extensively with blood. He fully expected to find that condition described by Sir Thomas Watson as "an accident of pulmonary hemorrhage."

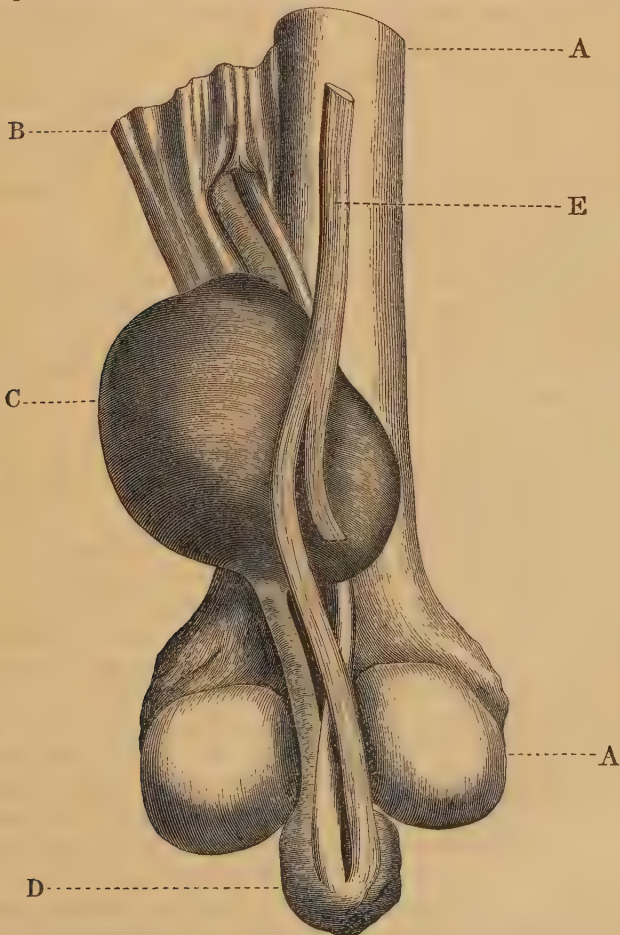
It would be seen that the left true vocal chord was extensively eroded on the edge. The right vocal chord was slightly tuberculous. The mucous lining of the trachea and of the bronchial tubes was red in colour. The right lung was found extensively solidified, and at the apex were two large anfractuons cavities. These communicated with one another, and with the bronchial tubes, which, of about the diameter of the fourth or fifth division, were found to end abruptly, and by an eroded and jagged extremity, in these cavities.

In the posterior of these two cavities he found a large quantity of clotted blood, and on carefully examining its walls, after washing out the contained blood, he found a large vessel eroded and hanging by one extremity into the cavity. It was about the diameter of a crow-quill, and from it hung a plug of coagulated blood. The bronchial tubes were full of blood. The non-tuberculated portion of the right lung was emphysematous, and the left lung was also emphysematous. The heart was in its ordinary condition. The features of interest which the case presented were, the sudden occurrence of death by asphyxia, as a consequence of hemorrhage proceeding from an eroded pulmonary vessel, and injected into the bronchial tubes during a full inspiration. The eroded vessel was a branch of the pulmonary artery, as shown by the dark colour of the blood extravasated, and by the relative positions of the vessel and accompanying bronchial tube.—*January 9, 1869.*

Popliteal Aneurism.—DR. ROBERT M'DONNELL brought under the notice of the Society a case of aneurismal disease of the popliteal artery of more than ordinary interest. The morbid specimen had been given to him for exhibition to the members by Dr. Richard Bookey, Demonstrator of Anatomy in the Medical School at Steevens' Hospital; he had also furnished him with the following notes of the case:—

Michael Byrne, aged sixty years, a man of healthy appearance and middle size, by occupation a labourer, was admitted to the Infirmary of the Shillelagh Workhouse, county Wicklow, under Dr. Booke's care, on November 1st, 1867.

On admission he complained of stiffness in the right knee-joint, and pain, attended with cramp in the calf of the leg, more particularly at night. He also complained of severe pain at the inner malleolus. On examining the limb the veins appeared varicose; the foot was œdematous. Above the inner condyle of the femur there could be felt a tumour the size of an orange. On applying the hand to this tumour a pulsation could be distinctly felt, and a "bruit de soufflet" was audible when the stethoscope was used. On compressing the femoral artery near Poupart's



A—Back of the Femur. B—Adductor Magnus Muscle, perforated by Vein and Artery. C—Larger Aneurism. D—Smaller Aneurism. E—Popliteal Nerve.

ligament all pulsation ceased, and the tumour diminished in size. The tumour could be most distinctly felt between the hamstring muscles, rather high in the popliteal space. On tracing the vessels lower down in the space, the artery could be felt enlarged and knotty; pressure on this part caused great pain, but more or less pain was constantly present.

The patient stated that two years before, when lifting a sack, he strained his knee, and afterwards perceived the veins to become enlarged and the calf painful.

He was undergoing treatment by compression, of which he was exceedingly intolerant, when he was attacked by dysentery, of which he died. He had been under observation for about twelve months.

The popliteal artery, at a short distance below the opening in the tendon of the adductor magnus muscle, was found to have an aneurismal swelling, larger than a hen egg, upon it. A second aneurism was situated lower down, immediately behind the knee-joint, resting, in fact, upon the ligament of Winslow. This second tumour was very solid, and the size of a walnut. The larger aneurism had displaced the popliteal vein which lay between it and the back of the femur. The nerve, however, was superficial to the aneurism, upon which it lay embedded in a sort of groove. Both nerve and vein were posterior to the smaller aneurism, and were closely adherent to it.

Dr. M'Donnell observed that a somewhat analogous case was figured in Scarpa's well-known work on "Aneurism," translated by Wishart, Plate II., Fig. 1, in which one of the aneurismal swellings was situated upon the lowest portion of the femoral, and a second smaller on the popliteal artery.—*January 16, 1869.*

Ovarian Tumour.—MR. STOKES exhibited the cyst of a multilocular ovarian tumour which he had removed from a patient in the Richmond Hospital, last September. She was fifty-six years of age, married, but never had any family, and up to three years previous to her admission into hospital, she had always enjoyed excellent health. At about that time she complained of a great deal of pain at the lower portion of the abdomen on the left side, and this was followed by the appearance of a small, fluctuating, painless tumour, which did not interfere in any way with her general health. It went on increasing until it attained an enormous size. Last March she was admitted into the Whitworth Hospital under the care of Dr. Lyons. During her sojourn there he (Mr. Stokes), had frequent opportunities of examining her in consultation with Dr. Lyons, and on one occasion they had the advantage of the experience of his friend Dr. Beatty as to the propriety of performing ovariectomy. There was no symptom or sign of any other organic disease but this, and they came to the conclusion that although the case was not a very favourable one for operative interference, owing to the advanced age and the emaciation of

the patient, yet as respiration was seriously impeded by the presence of this enormous tumour, it was a case for which the operation of ovariectomy was indicated.

On the 14th of September she was transferred to the Richmond Hospital, and on the 15th the operation was performed in the usual manner, and completed without difficulty. Some idea of the size of the tumour might be formed when he said that twenty-seven quarts were removed from two of its cysts. The patient did very well the first night after the operation. On the following morning, however, without any apparent cause, she commenced to sink, and at half-past five o'clock on the evening of the second day, thirty-six hours after the operation, she sank and expired.

The *post mortem* examination did not reveal any cause for her sudden death, and he therefore came to the conclusion that it must have been from the shock her system received from the operation.—*January 16, 1869.*

Cirrhosis of the Liver.—DR. CRYAN exhibited a specimen of cirrhosis of the liver, with great enlargement of the spleen. The subject of it, A. J—, aged 31, a lady in reduced circumstances, a widow, and the mother of three children, was admitted into St. Vincent's Hospital, under his care, on the 21st of November, 1868. She stated that she had always enjoyed good health until about ten months before, when she suffered, for about five weeks, from a severe attack of bronchitis; that about six months before admission she began to suffer from loss of appetite, occasional vomiting about two hours after taking food, and a dull heavy pain, and slight tenderness over the stomach and liver; that articles of diet that formerly agreed with her were now difficult of digestion; and that she gradually lost flesh and strength. She assured us she had always been very temperate. About three weeks before admission, she noticed enlargement of the left side of the abdomen, unaccompanied by any pain, and a fortnight later she discharged about two wineglassfuls of blood by stool, and had a recurrence of the hemorrhage, to about half that amount, after ten days. On admission she was pale and thin, and the face sallow; she complained of nausea, loss of appetite, constipation, and great debility; the tongue was red at the edges, and covered in the centre with a white fur; skin hot and dry; no jaundice; she had a short dry cough, and both lungs were congested posteriorly, as high as the lower angles of the scapulæ, and coarse, crepitating râles were audible over them; there was considerable ascites; the abdomen at the umbilicus was 45 inches in circumference; the superficial abdominal veins were much enlarged; the hepatic dulness in the right mammary line measured only three inches; palpation over the epigastrium failed to detect the left lobe of the liver; the lower edge of the organ could not be felt, in consequence of the great

distension of the abdomen ; nor, for the same reason, could the size of the spleen be accurately determined, though it was sufficiently evident, on percussion, that the area of splenic dulness was much increased ; the lower limbs were œdematous as high as the middle of the thighs ; there was no œdema of the face, upper extremities, or upper part of the body. There was dyspnea, respirations 36 in the minute ; cardiac signs normal ; radial pulse small, very feeble but regular, 84 in the minute ; urine scanty (about 20 oz.), of a dark red colour, depositing a large quantity of lithates ; acid, specific gravity 1032 ; it contained neither albumen nor bile.

The diagnosis of cirrhosis of the liver was made. The treatment consisted of diuretics and purgatives, with sinapisms occasionally (to relieve pain or vomiting) over the stomach and liver. A nutritious non-stimulant diet was directed, but after a day or two 4 oz. of dry sherry, diluted with water, had to be given daily, in consequence of the great prostration ; and, for some time, small doses of iodide of potassium, combined with fluid extract of taraxacum and infusion of gentian, were prescribed, and subsequently tartrate of iron. Notwithstanding a steady perseverance for some weeks in these remedies, the anasarca and ascites slowly increased ; the urine continued scanty, and loaded with lithates, but was free from albumen. On the 1st of January, the distension of the abdomen having become so great as to seriously embarrass the breathing, it was agreed, in consultation with my colleagues, that paracentesis could be no longer delayed. Accordingly, with their assistance, I performed that operation in the course of the day, and drew off nine pints of fluid ; it was clear, pale, straw-coloured, and feebly alkaline ; it contained a large amount of albumen. After the operation, one grain of watery extract of opium, in pill, was administered every fourth hour, with a view to maintain the intestines at rest—the pills were continued for forty-eight hours. The removal of the fluid was followed by very great relief to the breathing ; the urine increased to four pints on the day after the tapping, and the anasarca had greatly diminished. On the fifth day after the operation the patient lost all appetite ; the abdomen was again filling up with fluid ; but there was no pain or tenderness over it ; she had a dry cough, and the pulse was very weak and irregular. Six hours before her death the abdomen became highly tympanitic, and she complained of severe pain about the umbilicus, but there was no tenderness on pressure, and no vomiting ; this pain was relieved by turpentine fomentations, but she gradually passed into a comatose state, and died during the night.

On *post mortem* examination, twelve hours after death, the peritoneal cavity was found to contain four pints of clear straw-coloured serum ; the great omentum was of a bright red tint, and felt softer than normal, but there was no evidence of any general peritonitis. The liver was very small, and concealed beneath the right false ribs ; it weighed only 31 oz. ;

it was hard and firm, and its edges rounded; the outer surface was granular and nodulated; the nodules were, for the most part, of a dark yellow colour, and varying in size from a hemp seed to that of a large pea; the capsule was slightly thickened and opaque, and very adherent to the liver, but there were no adhesions to the diaphragm, or colon. On section, the organ presented a mottled appearance, the lobules were aggregated into small nodular masses of a yellowish-brown colour, each of which was surrounded by a white zone, or band of firm connecting tissue; the glandular substance was very dense and tough.

Microscopic examination showed that many of the hepatic cells constituting the granulations were surrounded by dark pigment granules; a few of the cells were loaded with oil, and many were destroyed, and their place occupied by little masses of dark brown pigment, mixed with molecules of fatty matter; the fibrillated connective tissue was absolutely—not merely relatively—increased, and was traversed by minute bile ducts and blood-vessels; many of the capillaries of the vena porte were compressed and destroyed, but the trunk and primary branches were quite pervious. The common bile duct was also pervious, the gall bladder had its coats thickened, and it contained about one ounce of thin dark olive-coloured bile. The trunk of the hepatic artery did not appear to be at all enlarged. The spleen was greatly enlarged, weighing 19 oz.; it was of a violet colour externally, and, on section, the parenchyma was found to be firm, much congested, and of a dark brown colour; iodine and sulphuric acid applied to it did not give any amyloid reaction. The kidneys were congested, and somewhat enlarged; the pericardium contained about two ounces of clear straw-coloured serum; the heart weighed $9\frac{1}{2}$ oz., there was a thin layer of yellow fat on the anterior surface of the right ventricle, its muscular substance was firm and of normal tint, and microscopical examination showed no appearance of fatty degeneration of the muscular fibres; the cardiac valves and orifices were quite healthy; the base of each lung was congested, and the right was bound to the front of the chest by old adhesions, and its thin edge was pale, soft, and emphysematous. Dr. Cryan said that he considered this case of interest, as affording a well-marked specimen of true, or fibrous cirrhosis of the liver, in a person of very temperate habits; and as further proving that very considerable ascites may co-exist, in cirrhosis, with great enlargement of the spleen.—*January 16, 1869.*

Pericarditis.—DR. T. E. LITTLE said that at the last meeting of the Society, Dr. Jennings had brought under the notice of its members a case of pericarditis, of considerable interest, and that case it was which had suggested to him the propriety of exhibiting the specimen now before them, as one which presented some points of parallelism with, while it differed in some respects from, it. They were both cases of extensive

pericarditis of old standing; differing in this, however, that whereas in the former case the whole of the inflammatory effusion was of the solid, lymph character, in the present one it was principally of a serous character.

The present was a case of chronic idiopathic pericarditis—idiopathic in this sense, that he (Dr. Little) could not discover in the history of the case, in its symptoms and progress, or in the *post mortem* appearances, the evidence of any of those conditions which are commonly allowed weight in determining the etiology of the disease.

The patient was a man thirty-one years of age, an inmate for some years of the Sligo Lunatic Asylum. He was the victim of an exaggerated curvature of the back, which evidently owned an originally rachitic origin.

The symptoms (as in the case of Dr. Jennings) were marked by a great amount of latency, so that it was impossible to determine with any degree of exactness the precise date of the beginning of the disease. The patient himself made no complaint, and it was not until he was observed by the attendants to become short-winded on exertion, and until the occurrence of a severe attack of diarrhea, that he was admitted into hospital. This was in the month of June. An examination of the patient then easily revealed the state of things. The diagnosis was extremely plain—so easy, indeed, that at one time paracentesis was talked of. The man himself (as already stated) made no complaint, and if he (Dr. Little) mentioned extremely rapid pulse and cardiac action, and extremely rapid respiration, he thought he had enumerated the whole of the symptoms presented. The physical signs, however, were very well marked, and were those ordinarily exhibited in the case where extreme serous effusion had taken place. Two peculiarities might be noticed—firstly, as to the precordial dulness, which never assumed the typical triangular shape, and never ascended as high as the clavicle, being more extensive in the horizontal than in the vertical direction; secondly, as to the cardiac impulse; at no period of the case was it wholly absent, but it was remarkable in this way, that it was impossible to fix upon any limited spot or focus, where the impulse was most intense—it appeared, as it were, diffused over the whole of the dull area equally.

In this condition the patient remained, with little change, until his death, which occurred three months after his admission to hospital. In the progress of the case, three additional phenomena worthy of note became developed. They were:—An attack of consecutive, dry pleurisy of the left side, evidenced by a very loud and rough persistent friction sound; the occurrence of a certain amount of œdema, with the development of a varicose condition of the superficial veins over the upper and anterior regions of the chest; and a slight attack of hemoptysis shortly before death. These last points are mentioned, as it seemed just possible

that they might have misled in the diagnosis of the case, by suggesting the idea of an intra-thoracic aneurism.

The pathological appearances presented on *post mortem* examination were the following:—On opening the thorax, the mediastinal space was found enormously enlarged by the much distended pericardial sac, the lungs and pleural reflections being much and abnormally separated in front. The extreme dimensions of the distended pericardium could be gathered from the following data:—It measured in horizontal circumference 24 inches, and it contained 65 fluid ounces of serum, of dark colour and slight turbidity.

The parietal pericardium was, on its outer surface, extremely vascular being covered by a thick network of small vessels. It was much thickened, and evidently in part organized, while presenting on its inner, free, aspect a stratum of recently deposited smooth lymph. The visceral pericardium was similarly much thickened by lymph deposition, which appeared in process of organization in its deeper parts, while on the surface it was recent, and of extremely irregular and rough character.

The heart was displaced to the upper and posterior region of the distended sac, and tilted horizontally, so that its apex was on a level with the third rib. In the condition of its valves and muscular tissue, it was healthy.

The glands of the whole mediastinal region were generally enlarged, and in several places the seat of a peculiar deposit of cheesy-looking matter, which resembled tubercle; if it were really of tuberculous nature, it was curious that neither in the lungs, nor in any of the other viscera, did anything of the kind exist.

The lungs were of small size. The left lung was adherent in its upper parts, and, in the lower, covered by recent and rough lymph. Much of it in the lower and posterior regions was completely carnified. Its tissue was healthy. The right lung was adherent throughout by old bands of fibro-cellular tissue. Its condition accounted for the hemoptysis, as it was occupied throughout by scattered spots of small, circumscribed, lobular congestion, in some parts almost amounting to an apoplectic condition. This state might have, probably, had its explanation in the enlarged condition of the glands at the root of this lung, as in this region the glandular affection seemed to have reached its fullest development.—*January 16, 1869.*

Aortic Aneurism.—DR. WILLIAM MOORE said the specimen he now exhibited was taken from the body of a man admitted to Sir Patrick Dun's Hospital on the 11th December. The history he gave was as follows:—He was a car-driver, and was in the habit of drinking fifteen or sixteen glasses of whiskey in the day, besides a few pints of porter. In the month of May he slept in a damp bed, and got pains in his chest, cough,

and rigors; and this laid him up for a week or ten days. At the end of that time he resumed his occupation again, but he found, in jumping on a car, or walking up a hill, his respiration completely failed him, and he was obliged to give up his occupation. He spat blood twice, but in very trivial quantities—once in the month of July, and again in September. He got extremely weak, and fell away in weight from fifteen to ten stone. He suffered from profuse night sweats, from great asthenia, and from loss of appetite. There was also another symptom. He complained that the great toe became painful, but after a time the pain left the toe, and fastened upon the ankle-joint. He was not able to sit up, nor was he ever strong enough since he came into the hospital to sit up, or move through the wards. He tried to do so on one occasion, but was unable. The patient complained particularly of the night sweats, which were most exhausting. On stripping him, the left clavicle was manifestly lower than the right. On taking a deep inspiration, he could not move the left side as freely as the right. Vocal resonance was altogether lost on the left side, and was feeble over the right side. The man had a kind of subdued voice—not “aphonious,” but a voice of a very low, subdued tone.

When the chest was percussed it was found to be dull from the left clavicle, in front, down to the base of the left side, and posteriorly there was also dulness from the scapular region down to the base of the left lung. The left side was an inch smaller than the right. The opposite side was normal as regarded percussion and auscultation. The stethoscopic signs over the left side were extremely feeble—distinct respiration over the base of the lung, sometimes accompanied by small crepitus. The man made no complaint of pain. His pulse ranged between 90 and 100. The night sweats were very profuse. He had total loss of appetite. The pupils were equal. There was no deformity of vision, no ptosis. He never complained of dysphagia. He did complain of dyspnea when lying on his back, which was his invariable position. All these symptoms would tally with chronic pleuritis. He was a well coloured man, but he had a cough, with great emaciation and wasting, night sweats, and asthenia, falling in of the left side, dulness on percussion; and all these symptoms dating (from his own statement) from a particular day.

The conclusion arrived at was that he had had pleurisy with effusion, that the dulness over the top of the chest was due to pleuritic adhesion, that the fluid had disappeared after the lapse of some time, and that the side had fallen in. The cardiac sounds were healthy. There was no bruit, nor increased heart's action. The cardiac sounds could be heard very clearly under the left clavicle, but that tallied with the consolidation of the lung, caused by the pleuritic effusion. There was no superficial venous radiation over his chest. He went on in this way for some

time, neither better nor worse ; but, on the evening of the 19th, he gulped up a very small quantity of blood, and turned in bed and died.

On *post mortem* examination, the right lung was found to be permeable to air. The left lung was consolidated, and covered with a thick pleuritic capsule. So far, the diagnosis was right. It was somewhat smaller than the other lung, which would explain the falling in of that side. But how explain the sudden death? When the lung was cut into they found a kind of intercurrent pneumonia. This, however, would not explain the spitting of blood, and sudden death ; but, on further examination they came upon the secret of the whole matter. This man had an aneurism of the descending portion of the thoracic aorta. The aneurism pressed on the left bronchus. It corresponded to the third and fourth dorsal vertebræ. There was also much athermatous disease of the aorta. It might be said aneurism should have been suspected, from the difference in the respiration in the lungs. This would have been natural if there had been dysphagia, or any symptoms of nervous pressure, but where the symptoms and physical signs could be apparently so readily explained by pulmonary disease, the above-mentioned diagnosis was arrived at.—*January 23, 1869.*

Vesical Calculus.—MR. PORTER said, the specimen I have to bring before the Society to-day is a foreign body that I cut from the bladder of a patient in the Meath Hospital, on the 3rd of the present month. He was a man twenty-five years of age. About two years ago he suffered very much from organic stricture of the urethra. He had been treated by a medical man in England, but the treatment gave him so much pain that he thought he would manage himself with less suffering. About fourteen months ago he constructed a bougie with a piece of gutta-percha ; by means of this he attempted to treat himself, and on the first occasion he passed it fairly into the bladder. He allowed it to remain there ten or fifteen minutes, as he had heard from the medical man that it was a good mode of treatment ; but he found great difficulty in withdrawing it, and a portion, about three-fourths of an inch in length, broke off and remained in his bladder. He began shortly afterwards to suffer from symptoms of stone, and in May last was sent to Mr. Porter by his friend, Dr. Ridley, of Tullamore. He had him on the table to cut out the foreign body, but he became so frightened just as they were about to secure him that he insisted on leaving the hospital. A fortnight ago he changed his mind, and came up to be operated upon, and Mr. Porter then cut the stone from the bladder, adopting the median operation for that purpose. Mr. Porter exhibited the portion of the bougie which had broken off in the bladder, and it was seen beautifully how the phosphatic deposit had been laid down in layers around it. It was very soft, and broke up under the forceps ; yet he was able to extract a large portion of it

attached to the bougie. It weighed in all 140 grains. The patient made a good recovery.—*January 23, 1869.*

Gangrene of the Lung.—DR. LYONS said the specimen he had to exhibit was taken from the body of a young man, twenty-six years of age, admitted to the Hardwicke Hospital with scarlatina, on the 17th of November last. The history of the case was as follows:—He was a gardener in the south of Ireland, in a very healthy situation; he was travelling to Dublin by rail on the 15th, and in the carriage in which he sat were a number of soldiers' wives and children, and he heard them talking about scarlatina. This appears to have been the only occasion on which he was at all exposed to the poison of scarlatina. His case was one of ordinary scarlatina, and he was convalescing very fairly from the disease when it was noticed that the glands in the neck began to swell. They swelled rapidly, and it seemed as if they were going to suppurate very freely, when to his surprise he found one day that a large mass of the glands which occupied the left side of the neck had quite suddenly receded. This was attended by a simultaneous development of acute pneumonia in the apex of the left lung, which ran a very rapid course; and under the influence of treatment the patient seemed to be convalescing from the pneumonia, when several glands on the right side of the neck became enormously enlarged, and after being poulticed for ten days they were enabled by the lancet to evacuate a good deal of matter in that situation. The apex of the lung was in the third stage of pneumonia, and now he seemed to get into a sort of passive condition, the lung making no progress either towards recovery or in any other direction. He fell into a chronic pyemic condition, and depots of purulent matter formed in five or six different situations. In the small of the back two collections of matter suddenly appeared, which were evacuated, and then one appeared on the anterior part of the left thigh. He continued in hospital for several weeks with comparatively little change, his strength being supported by a liberal allowance of wine, food, and medicine. His pulse was exceedingly weak, and he now had constant night sweats; and about a fortnight ago he complained of a considerable amount of acute pain low down on the left side. It was now evident that pleuritis was superadded to the other conditions present, and at the same time the disease appeared to undergo some extension in the lung, and to travel in a direction downwards; but it was not until about five days prior to death that the most remarkable symptoms of all in the case became developed. Suddenly one morning while he (Dr. Lyons) was inquiring how the patient had passed the night he began to cough, and he at once noticed the characteristic odour of gangrene in his breath. He coughed up quantities of an exceedingly foul fetid matter of a dark greenish hue, and it was obvious that there was an enormous quantity of this fluid in

the cavity of the chest, occupying the lower two-thirds of the left pleural cavity, and accumulated to such a degree as to thrust the heart to the right side, and produce a very remarkable amount of dextrocardia. He daily spat up large quantities of this fluid. His end was rather sudden. He did not seem very much worse on the last day that Dr. Lyons visited him than he had been on several days previously.

They found on making a *post mortem* examination that the upper third of the left lung was in the third stage of pneumonia, and from that down the lower two-thirds of this organ was converted into a semifluid putrilaginous mass. So intimate was the adhesion between the pleural membrane and the surface of the lung that it was found impossible to detach it from the ribs. A line, which could be distinctly seen in the specimen, showed what was left of the still undestroyed lung tissue. It was a sort of line of demarcation which seemed to be formed between the portion of the lung involved in pneumonia and that which was broken down into this deliquescent mass, and the odour of which was so intolerable.

It would seem, from looking back upon the case, as if the destruction of the pulmonary tissue had been going on for a considerable time, and that a large quantity of the lung structure had broken down into this deliquescent state, but that this was for a time cut off by a conservative, inflammatory action from the upper part of the organ, and thus had no access to the air, and the muco-purulent expectoration which he had was therefore devoid of a fetid character. Then, suddenly, under some violent access of coughing, egress was effected through a bronchial tube, and he then spat up this foul-smelling fluid. It was important to notice that this condition of consolidation of the lung commenced with the sudden subsidence of the glandular swelling in the neck. They seemed to be cause and effect. It was further remarkable that the patient lived under this long process of disease for a period of seventy-three days from the time of his admission into hospital.—*January 30, 1869.*

Œdema of the Lungs.—DR. LYONS said the specimen he had to exhibit was taken from the body of a girl thirteen years of age, who had been admitted in scarlatina to the Hardwicke Hospital. She went through the disease very favourably, and in the desquamating state felt so perfectly well that there was some extreme difficulty experienced in getting her to remain in bed. The urine was found to be albuminous, and of ordinary specific gravity, and abundant in quantity. She frequently got up and ran about through the ward, and there was no appearance of danger. He saw her on a certain day, when she was by his direction kept in bed. There was a little wheeze in the chest, but nothing of consequence, and she seemed fairly progressing to convalescence. For two or three days previously to this he had been inquiring about the urinary secretion, but

notwithstanding the efforts of the nurse she could not be induced to keep any of her water, and he could not say whether for two or three days previous to her death she voided any urinary secretion at all. On a certain day he saw her in bed. She was lying quiet, but most desirous of getting up, and saying that there was nothing the matter with her. On that evening she suddenly exhibited violent symptoms of suffocation, and died before morning. He was anxious to see the result of the *post mortem* examination, and they found as the main lesion the condition of the lungs, which he now exhibited. They were completely surcharged with serous fluid. There was an enormous amount of œdema in the lungs, and this condition was general throughout both organs. It would seem as if death ensued, in this instance, from the sudden invasion of œdema, producing in this way a mechanical obstruction to respiration. The right kidney was to a certain extent congested, but did not show the evidence of acute desquamation nephrenitis.

Notwithstanding her youth there was a considerable amount of fatty disease in the kidney which must have existed prior to the time when she became affected with scarlatina. Both organs had undergone a marked amount of fatty degeneration, which could not possibly have occurred during the time she was labouring under scarlatina. A considerable amount of fatty change had also taken place in the heart. They found a tumour of considerable size partly pressing on the pulmonary artery and the aorta. It was a mass of what had been at one time an enlarged and tubercular bronchial gland.

On examining the lung carefully they found evidence of pre-existing tuberculosis in two or three spots disseminated over the organ, and there were numbers of small calcareous particles taken from what had been tubercular deposits. The lungs were very dense, very solid, and sank in water. The case was remarkable in this point of view that there was a sudden accession of œdema of the lung. Death was clearly traceable to this occurrence. He was at first inclined to believe it might have been due to uremic poisoning, but he found the little creature was conscious, almost up to the moment of her death, that there were no direct cerebral symptoms, and nothing in the nature of convulsions, and all the distress she suffered was confined to the respiratory organs. He could only come to the conclusion, therefore, that death arose from a suddenly developed œdematous state of both lungs.—*January 30, 1869.*

Atrophy of the Muscles from Disuse.—DR. BENNETT showed a specimen illustrative of the changes which occur in the muscles and joints of a limb maintained for a long time constantly fixed in splints. The limb was removed on the previous Thursday by amputation above the middle of the thigh, the operation being necessary in consequence of the extent of ulcerated surface incapable of healing, the result of a scald of the

entire limb, which had occurred over two years previously. The limb had been constantly kept extended by splints of sheet lead placed on the posterior aspect, with the double object of preventing motion and maintaining pressure on the ulcerated surface.

The first point to be noticed was the condition of the muscles. Those of the thigh on both aspects were completely replaced by fat, no trace of normal tissue was to be seen, and the only evidence to the naked eye of the previous existence of muscles was the pattern of their fibres indistinctly traceable in the fat. The muscles of the calf of the leg were altered almost as completely as those of the thigh, but the deep muscles on the posterior aspect of the leg, and those of the anterior and external aspect, retained some slight colour of normal muscular tissue. In the sole of the foot there was some good muscular tissue in the muscles of the great and little toe. The microscopic examination of the altered tissue showed that the change in colour was due to the deposit of fat in the connective tissue of the muscles, not to the replacement of the various elements by oil globules, as in true fatty degeneration of muscles. Wherever the muscular fibres could be seen buried in fat they were found to contain no oil within the sarcolemma. The second point of interest in the specimen was the condition of the joints. Of these the knee and ankle had been almost absolutely immovable during the entire treatment, the knee most so, and at no time had they been the seat of inflammatory action, at least such had never been observed, and the case was under constant observation, and required constant dressing throughout its whole course. The synovial cavity of the knee-joint was obliterated by fibrous tissue, except for a small extent corresponding to the lateral condyle of the femur; the articular surface of the patella was free from adhesion only for the extent of about one-fourth of its external aspect; the part of the synovial cavity which still existed was little more than that which intervened between this small part of the patella and the external condyle of the femur. The fibrous tissue connecting the articular surfaces was easily torn, and it was attached in great measure to the articular cartilages, which still existed, except along the border of the articular surfaces of the bones: here the cartilage had been absorbed, and the adhesions were directly attached to the bones. The ankle-joint showed the same changes as the knee, with this difference, that it seemed to be more recently altered. The joint was easily opened, but the entire cavity seemed to be obliterated by a false membrane formed between the cartilages; in one part posteriorly there were to be seen fine vessels extending into this membrane, a long way over the trochlea of the astragalus. The membrane was so transparent that the appearance of the arches of blood vessels reminded one of the vessels formed on the cornea of the eye during ulceration. The articular cartilage seemed to have lost little of its normal polish by the deposit of

the transparent vascular membrane on its surface. A similar membrane was formed in the greater number of the tarsal joints, the cartilage of which had been removed around the border for a width of about half-a-line.—*February 6, 1869.*

Stricture of the Pharynx.—DR. HAYDEN exhibited a good example of amyloid and fatty disease of the liver and kidneys, together with syphilitic stricture of the pharynx, taken from the body of a man aged 31, who first came under his notice in hospital on the 25th, and died on the 28th March last.

He had chancre, followed by sore throat, four years previously; two months prior to date of admittance he began to experience a sense of fulness and tension in the region of the liver, and to suffer from diarrhea and occasional vomiting, and six weeks later he discovered enlargement of the liver.

When admitted the man was pale and emaciated; he spoke with a feeble, but not hoarse voice, and as if a bit were in his throat; he absolutely refused to attempt to swallow solids, and evinced great aversion to the deglutition of liquid nutriment, the attempt to swallow liquids being invariably followed by spasmodic cough and threatened suffocation. Several scars were visible on the back of the pharynx.

There was some liquid effusion in the peritoneum; the liver was greatly and uniformly enlarged, descending to the umbilicus; it was remarkably firm, but not tender to the touch, and was even on the surface. No enlargement of the spleen could be detected.

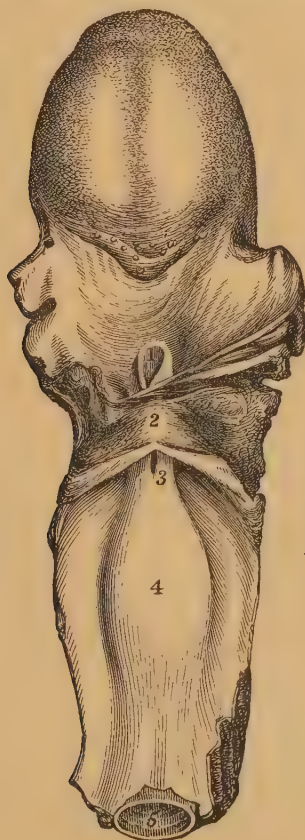
The urine was passed in moderate quantity; it was examined for albumen, and as to its specific gravity; the latter was 1·017, but owing to some confusion in the return made by the resident clinical assistant, the result of the examination, in regard to albumen, became involved in uncertainty, and was of no value as an element in the diagnosis; and the shortness of the period during which the patient survived (three days), prevented a repetition of the examination.

There was no jaundice, superficial venous engorgement, or anasarca; the pulse was small and quick, and the surface cool.

On Saturday 27th an erysipelatous blush appeared on the right side of the face, and on Sunday this assumed a more decided character, and was accompanied by swelling; at one o'clock on that day he was suddenly seized with acute pain in the abdomen, which continued with unabated severity, notwithstanding active treatment, and was associated with much tenderness; the man became gradually weaker, the extremities cold, and at 9 p.m. he died.

A stricture was found in the laryngeal portion of the pharynx, on a level with the middle of the epiglottis, which it folded up into the form of a tube.

The stricture was only about a quarter of an inch in vertical diameter, and was caused by an old cicatrix, manifestly syphilitic, involving the entire thickness of the wall of the pharynx, and so contracting the passage as to admit the little finger only with difficulty. There was not sufficient room for solids to pass, and liquids which might have effected an entrance must have been conducted directly into the larynx by the folded epiglottis, which was so tightly embraced by the stricture that it was incapable of descending to shelter the glottis; the epiglottis and the remainder of the larynx were perfectly sound, but the pharynx below the stricture, and the upper portion of the œsophagus, were congested. There were about



1. Folded epiglottis, showing the narrow passage by which air entered the larynx, and by which likewise alimentary matter found entrance in deglutition.
2. Stricture of the pharynx as seen from behind.
3. Inter-arytenoid fissure.
4. Œsophagus laid open.
5. Naked trachea.

two pints of turbid serum in the cavity of the peritoneum; the coils of the small intestine were, at several points, matted together by recent lymph, the convex surface of the liver presented many small masses of a similar character. The liver was of a pale yellow colour on the surface, remarkably firm, and uniformly enlarged, except that the extreme right portion of the right lobe descended somewhat below the level of the remainder of the organ. Its weight was nine pounds thirteen ounces; transverse measurement, eleven inches; vertical measurement at extreme right, thirteen inches; and antero-posterior diameter of right lobe at thickest part, seven inches. The gall-bladder contained about two ounces of light yellow bile. A section of the liver presented the appearance of that of a Swedish turnip, both in its colour and uniformity of surface, and yielded the characteristic amyloid reaction with iodine and sulphuric acid. Several white nodules, about the size of a pea, and corresponding to the description given of "syphilitic nodules," were dispersed through the organ. The hepatic cells were, for the most part, fused together, and their nuclei and other contents had disappeared; a few of the cells were, however, separately distinguishable; these were much larger than the ordinary hepatic cells, measuring 660 of an inch in diameter, and presenting large and distinct nuclei; a considerable quantity of oil floated over the field, but none was visible within the hepatic cells.

Dr. Foot was kind enough to make a chemical analysis of the liver, and has informed me that it contained 4.278 per cent. of fat; the quantity in the whole organ being 2.225, or nearly $2\frac{3}{4}$ ounces.*

The spleen weighed seventeen ounces; its capsule was thickened, and its structure very lacerable, but otherwise apparently healthy; it did not yield the characteristic amyloid reaction with iodine and sulphuric acid.

The kidneys were enlarged and pale, weighing each eight ounces; the surface of section presented a waxy appearance, the cortex was thickened, and there was much fat in and around the pelvis. Examined microscopically, and treated with iodine and sulphuric acid, the *glomeruli* were seen in several instances to be coloured deep brown, whilst the inferent and efferent vessels were distinctly blue. In other instances the epithelial lining of the malpighian bodies was tinted blue.

Dr. Hayden regarded these morbid specimens as affording a good example of amyloid and fatty degeneration of the liver and kidneys, with "syphilitic nodules" in the former, arising from constitutional syphilis. There had been no disease of the bones, and no chronic purulent discharge. The stricture of the pharynx he looked upon as unique, whether in regard to its cause, its situation, or its consequences, as he failed to

* Amount of fat in a typical case of fatty liver, 750 grs. yielded 398.5 grs. fat, 53.13 per cent. Whole liver weighed 10 lbs.; contained 5 lbs. 5 oz. fat. Subject was highly intemperate, not tuberculous.—(Brit. and For. Med. Chir. Rev., Oct., 1854, p. 529).

find a similar example recorded in the transactions of this Society, or in those of the Pathological Society of London, or, indeed, in any other publication which had come under his notice. The annexed wood-cut shows the situation and character of this stricture. Acute peritonitis, in many such cases reported by Frerichs, set in without perforation or external injury, and was the immediate cause of death.—*April 10, 1869.*

TRANSACTIONS OF THE ULSTER MEDICAL SOCIETY.

DR. CUMING, President.

Complete Extirpation of one-half the Tongue, by W. MAC CORMAC, M.A., M.D., F.R.C.S.I., M.R.I.A. Read September 7th, 1869. The President in the chair.

COMPLETE extirpation of the tongue is an operation of comparatively recent date, and although in the present instance only one-half the organ was removed, the difficulty of the operation is thereby increased rather than diminished. I have brought the particulars of this case under the notice of the members of this Society, because the operation is comparatively rare, the present being the first instance in which it has been performed in this hospital, and because I am able to demonstrate in the person of the patient himself, whom I present to you for inspection, how successful is the result, what complete comfort he has gained, and how trifling is the interference either with the power of articulation or deglutition.

Before operation this man suffered great pain, could only swallow with much difficulty, and, in short, was partially starved. Now he will tell you he eats, drinks, sleeps with complete comfort, and even though this relief be only temporary, it is for the time being complete.

The mode of operation I adopted was the submental. By means of a median incision between the chin and the hyoid bone and the separation of the genio-hyoid, mylohyoid, and genio-hyo glossus muscles from each other, I was able to pass my finger to the base of the tongue, the thickness of the tongue proper, or somewhat less than three-quarters of an inch intervening between my finger and the epiglottis. Through this opening, by means of a strong Liston's needle, I carried first a piece of whipcord, and then, by means of it, the chain of Chassaignac's ecraseur to the position where I desired to effect the division.

I will now give a brief history of the case:—

John Corry, sixty years of age, was admitted to hospital on account of painful ulceration of the tongue. He smokes to excess. About six months ago his tongue became sore and ulcerated, and until the present time the ulcer became gradually larger and more painful. On examination

I found a ragged oval ulcer the size of a florin occupying the posterior third of the right margin of the tongue, and stretching back to the pillars of the fauces. Around its base was an indurated mass, extending nearly to the median line. There was slight enlargement and tenderness of the sub-maxillary glands on the affected side. The sore itself presented a most unhealthy appearance, and was exquisitely painful. Both deglutition and the power of speech were materially impeded.

The patient urgently asked for relief at any cost of suffering, and accordingly, on August 10th, 1869, I proceeded to remove one half of the tongue. The patient was chloroformed, and an incision made two inches in length in the median line just above the hyoid bone. With very little trouble the submental muscles of the tongue were separated from each other, and the finger reached the base of the organ. A curved Liston's needle, carrying a piece of whipcord, was passed through the centre of the tongue, emerging just above the root of the epiglottis. The needle being withdrawn, was armed with another cord, and through the same opening made to emerge at the side of the base of the tongue. It was now withdrawn, leaving a loop of cord, through which the free end of the first cord was passed, and drawn out through the wound. A loop of cord thus encircled the right half of the base of the tongue, and served to carry the chain of the ecraseur into the required position. Another cord was adjusted after a similar fashion, passing up through the submental wound, and passing down to it again at the fraenum so as to embrace the tongue longitudinally. By means of this a piece of strong catgut was adjusted and attached to another ecraseur similar to Malgaigne's, of the ordinary kind recommended for such operations. This catgut had been tested beforehand, and was considered trustworthy, although it gave way during the operation, and led to some embarrassment. This was overcome by making the transverse section first, and then adjusting the chain of the ecraseur so as to make the longitudinal section in place of dividing the tongue in both directions simultaneously. It only now remained to divide the lateral attachments of the tongue to the floor of the mouth, and the complete separation of one half the tongue was effected, the section being made on all sides clear of the disease. The division was effected at the rate of one click of the ecraseur handle per quarter minute. No bleeding whatever occurred from the divided surfaces, and although unnecessary delay was caused by the operation being performed in three stages and with one ecraseur, it was completed in two hours. After the preliminary steps were completed, the administration of chloroform was abandoned. Had I to perform this operation again I would certainly use, in preference to all else, Chassaignac's ecraseur and articulated chain. It has a sawing alternate sort of motion which divides the tissues better, with less risk of

hemorrhage, than either the wire rope, or cord, or catgut, which, in point of fact, is not strong enough. Had the entire tongue required removal, two applications of the ecraseur, one vertical, the other horizontal, would have completed the extirpation in less time, and with greater ease. I would also divide the gustatory nerve as a preliminary step, in accordance with Mr. Hilton's recommendation.

The subsequent progress of the patient was everything that could be wished. The same evening when I visited him he was not depressed, nor was there any bleeding. There was a copious secretion of glairy saliva. On the 14th, four days after operation, the report mentions that the patient was "quite easy, no shock or fever, pulse 88. Wound in the neck perfectly healed, except at one point, where there exuded a few drops of pus. He takes arrowroot, and drinks milk, rinsing out the mouth with carbolic acid gargle. He was able to sit up." Next day the wound beneath the chin was found to be completely healed. The state of the tongue and mouth perfectly satisfactory, and he felt so well as to be able to go out of doors. In short, he was reported perfectly convalescent. In a few days more the wounded surface of the tongue healed also, and he felt an amount of ease and comfort, together with absolute freedom from pain, to which he had been long a stranger. I have only kept him in the hospital, somewhat against his will, in order that he might be able to show himself to you to-night, when you will be able to judge of his condition.

The patient here presented himself for the inspection of the members. He expressed the warmest gratitude for the change in his condition, which was now everything that he could desire. He could speak in such a way as not to attract remark, and looked extremely well. On examining the mouth it was difficult to imagine so large a portion of the tongue had been removed, and no trace of diseased action anywhere remained. The portion of tongue removed, exactly one-half of the organ, was also exhibited.

Nothing could well be more satisfactory than the result achieved, and although the disease will almost inevitably return, the poor man will enjoy a period of complete immunity from suffering. His former condition may be realized when I tell you he begged that some operation should be attempted, even though he should die during the course of it, or immediately after, his sufferings were so unendurable.

When we contrast this mode of operation with that of Mr. Syme, who divided the lower lip, chin, and lower jaw, holding its halves asunder while the base of the tongue was swept across with the knife, or the diseased parts dissected out, we cannot wonder at that surgeon strongly objecting to the propriety of attempting this operation, although he himself was one of the first to perform it.

Regnoli successfully extirpated large portions of the tongue by pulling

it down through a large wound made along the inner border of the lower maxilla from one angle to the other; and Mr. Gamgee and other surgeons have likewise adopted this method. These are, however, most severe procedures compared with that introduced by Chassaignac in 1850, to whom the invention undoubtedly belongs. The ecraseur divides the tongue with great ease, and it is necessary not to permit the instrument to do its work too quickly. The long periods, extending to forty-eight hours, which were consumed in Chassaignac's first operations, are by experience found needless, but I would exercise much caution in going to the opposite extreme, when all the advantages of the method will be lost.

Mr. Nunneley, as he mentions in his address delivered to the British Medical Association at Leeds, has since practised M. Chassaignac's operation with great success, having performed it some nineteen times. Mr. Jessop, in a letter to the *British Medical Journal* of September 4th, 1869, establishes Chassaignac's claim to priority, which Mr. Nunneley had seemed to assume for himself. Before Chassaignac, Jules Cloquet had described this operation, using the ligature in place of the then unknown ecraseur.

Dr. J. W. SMITH read the following case of *Abscess of the Lung terminating in Pyemia*:—

Mr. E. had occasionally consulted me during the last ten years. With the exception of an attack of acute gout in one foot six years before, his ailments had been of a very trivial kind. He was forty-four years of age, of middle height, well built, and possessed great physical strength. He was of active habits, and fond of field sports. I saw him on 29th August, 1868. He had been ill for eight days with cough and occasional chills; was feverish and restless at night, and unable to sleep in consequence of the hard frequent cough; his appetite was bad, his pulse 100, and his tongue was much coated. A careful examination of his chest could detect no cause for his cough; the respiration, although somewhat quickened, was perfectly natural, and his heart sounds were healthy. When looking into his throat to see if there was any cause of irritation there, he coughed, and I immediately felt a gangrenous odour. He himself had felt it occasionally during the two days when coughing. I concluded that he had an abscess of the lung, and explained so to him. I visited him next day, and saw the expectoration of the previous night—about three ounces of dirty yellow-coloured pus mixed with blood. His chest was again carefully examined, but nothing abnormal was heard. It was not till the 2nd September, five days after I first saw him, that there were any stethoscopic signs of disease. On this day pleuritic friction sound and crepitus were heard about one and a-half inches below left nipple. During the next ten days these sounds gradually extended upwards, and on the

15th were audible over the whole front of the left lung to within two inches of the clavicle. The expectoration at night had increased to eight or ten ounces, and was often very offensive; it varied in colour from greenish yellow to grey, and was sometimes mixed with a good deal of blood. On the 20th Dr. Seaton Reid saw him in consultation. He concurred in my opinion of the case, and recommended small doses of turpentine and ether, in addition to the quinine and mineral acids previously ordered. At the end of a fortnight the stomach became irritable, and the medicines were discontinued; friction sound and coarse crepitation were now also heard below left axilla. On the 6th October there was a slight attack of gout in one foot, which disappeared in a few days. On the 15th he was suddenly seized with an acute pain in the left side; he was unable to lie down; his respirations very frequent; pulse 130. He was relieved by full opiates, and in a day or two loud friction sounds were heard at the back, from the spine of the scapula downwards. He had been now ill eight weeks, had lost much flesh, and the expectoration had not diminished. He was ordered quinine and tincture of muriate of iron every four hours. From this time a gradual amendment took place, and in four weeks he was able to be removed to the country. Here he steadily improved in health, and gained flesh. Cod liver oil had been added to the quinine and iron. He returned to town about the middle of December, feeling almost well; he was within a few pounds of his usual weight, the cough was almost gone, and the expectoration was reduced to about a drachm in the night; except that a few clicks were heard on full inspiration in front of the left lung, and that it was somewhat less resonant, all abnormal sounds had disappeared. About Christmas I met him in the street; he appeared to be, and said he felt, quite well. On Tuesday, 5th January, having felt well and walked out the day before, he had a severe rigor, and vomited. I saw him soon after; his face was flushed and heavy, pulse 120, no change in the lung since last examination. On the 8th there was a slight puffiness at the outer angle of left eye, and he could not move in bed from pain in the lower part of his back and right hip. On the following day there was some fulness here which gradually increased, and extended down the thigh. On the 12th free incisions were made behind the trochanter and on the outside of the thigh, which gave exit to a quantity of intolerably fetid pus, mixed with bubbles of air. On the 14th he was seized with severe pain below the right nipple, and friction sounds were heard here. The swelling at left eye was opened, and discharged an ounce of pus. He was quite sensible, but in a state of great prostration; he had profuse sweats, and his breath had a sickly odour of pus. On the next day there was evidence of matter in the ankle-joint. He lingered till the 18th, when death terminated his sufferings.

Although an examination of the body was not obtained, there is, I

think, little doubt, that the case was one of deep-seated abscess of the left lung. The course of the disease, the gradual development of the signs of pleuro-pneumonia limited to one lung, and the peculiar character of the expectoration, cannot well lead to any other conclusion.

It is worthy of note, that although a careful examination of his chest was made daily, no physical sign of disease was heard till five days after he was first seen. The termination of the case was very unexpected. The supervention of pyemia in such a case must be of rare occurrence, especially when restoration to health seems almost assured.

Dr. J. W. SMITH read the following case of *Cerebral Meningitis* :—

Simon Corcorin, a policeman, aged 32, was brought to hospital in a state of unconsciousness on the evening of the 10th of May. All that could be learned about him was that he had been ailing for a day or two, but not off duty, and that shortly before admission he had vomited, and then became insensible. I saw him about two hours after. He was very restless and incessantly turning from side to side, his head felt hot, his face was flushed, his eyes were closed, and he resisted any attempt to open them, the pupils were neither contracted or dilated, skin cool, pulse, 80. Had vomited once since admission to hospital. He slept none during the night, but was somewhat more conscious the next day, as he put out his tongue when asked. When raised up in bed he appeared to suffer pain in the back of his neck. Pulse 68; regular. He was still very restless, and some leeches were applied to his head with difficulty.

During the two following days he gradually recovered consciousness, and on the 13th was able to give some account of his illness. He had been on duty on Saturday 8th, and exposed for six hours to a cold east wind. On the following day he felt chilly, and had pains in his head and back. On Monday he attended the Police Court as a witness, and when there became sick, and remembered nothing after till he found himself in hospital.

May 14th.—There is a loud mucous râle in the trachea, and large bronchi, and the breathing is occasionally stridulous; the chest is resonant on percussion, and some sonorous râles are heard in both lungs.

He does not appear to suffer from dyspnea. Pulse, 72; respirations, 28.

On the 16th the chest was quite free from mucus; he complained but little of his head, and answered questions sensibly.

During the next four days he slept little, was delirious at night, and had almost constant hiccough. The pulse remained steadily at 60.

On the 21st, having slept well all night from an opiate, he became suddenly affected as on the 14th, the mucus was in such quantity that asphyxia seemed imminent; the face was livid, and the pulse rose to 120. Towards evening this passed away; he was free from pain, but said that his head felt numb, and as if at some distance from his body.

He remained for the four following days in a state of great prostration ; he often talked incoherently, but when spoken to answered sensibly. He always insisted on getting out of bed to pass water, and drank milk freely.

26th.—Had passed a fair night, breathing perfectly quiet. About mid-day the paroxysm of dyspnea recurred with great violence ; in fifteen minutes the features were quite livid, there was a general convulsion, followed by rigidity, and in a few minutes he was dead.

Post mortem.—The head alone was examined. The mass of the brain was healthy and firm, but when sliced, the surface of the white matter showed many red points. The lateral ventricles contained about two ounces of turbid serum. The central substance was healthy, except the corpus striatum, which seemed a little softened at the base ; the arachnoid in front of the pons and upper part of the medulla oblongata was opaque, and the sub-arachnoid tissue here, was infiltrated with pus, and recent coagulated lymph. The membranes over hemispheres and other parts of the brain were healthy.

Although the *post mortem* appearances were such as are commonly found in cerebral meningitis, there was an absence of the more characteristic symptoms of that disease. The headache was never severe, and was only complained of when the patient was questioned. There were no muscular twitchings, rigidity, paralysis or convulsion, except what occurred immediately before death. The attacks of dyspnea were a peculiar feature in the case. The first occurred early in the disease, and indicated, I considered, that the lesion was in close proximity to the eighth nerve near its origin. The attacks recurred with increased severity, and the third was the immediate cause of death.

On the Pathogeny of Apoplexy of the Medulla Spinalis. By W. KOSTER. Translated from the "Nederlandsch Archief voor Genees en Naturkunde." Vol. IV. Part IV. 1869. By WILLIAM DANIEL MOORE, M.D., Dub. et Cantab., M.R.I.A., L.K.Q.C.P.I., &c., &c.

A CASE of sudden paralysis of the lower extremities, in the clinical examination of which apoplexy of the spinal cord was the only possible diagnosis, terminated fatally, chiefly from extensive gangrene *ex decubitu*. On examining the body I found a condition of the inferior part of the spinal cord, which was not to have been expected starting from the idea of "apoplexy," as borrowed from the cerebral affection, and, according to the descriptions of most pathologists, considered to be applicable also in the so-called apoplexia medullæ spinalis. Further studies of this case, and of "hemorrhage in the spinal cord" in general, led me to some reflections which I now venture to communicate.

The case was that of a man, aged 48, who had previously always

enjoyed good health. A couple of days before the occurrence of the paralysis he had, now and then, had peculiar pricking sensations in the feet and legs. On the 24th of August he found himself, on awaking in the morning, completely paralysed. On admission into hospital, eight days later, there was complete akinesia, with anesthesia of the inferior extremities and of the lower half of the trunk, difficulty of respiration, constipation of the bowels, and retention with incontinence of urine. He did not complain of pain in the back; nor had any pain been felt before his admission. In the course of treatment (cupping, with scarification along the back, &c.), there was at first some improvement, particularly of respiration and of sensation in the trunk and in the upper part of the limbs. In the middle of September, however, gangrene set in in the sacral region. This spread fearfully, and partly from exhaustion, partly with pyemic phenomena, the man died on the 29th October. Meanwhile sensation had increased, and motion had occasionally slightly returned in the extremities.

At the *post mortem* examination I expected that I should have been able distinctly to demonstrate the hemorrhage in the spinal cord, and the further changes of the effused blood. In place of this we found only atrophy of the cauda equina, and of the lower third of the spinal cord, without any externally visible change. On making sections, the grey substance of the atrophied lumbar portion looked pale and soft. It was attenuated; in some places it was even not plainly distinguishable either by form or colour. With the exception of the atrophy, the white substance apparently presented no alteration. The change of the grey substance extended very far upward, even to the cervical portion. Above the middle of the spinal cord no attenuation was, however, observable on external inspection. *Nowhere did we find effused blood, or any change which could apparently be connected therewith.*

On microscopical investigation of the fresh spinal marrow we found the usual constituents which occur in "softening"—granular cells, attenuated and thickened nerve fibres, and much granular mass. But amongst these brownish or yellowish, irregularly scattered lumps and very small crystals of hematoidine caught my eye.

After hardening the spinal cord in chromic acid, and regular examination of the lower part in longitudinal and transverse sections, it seemed to me that in the most degenerated places the nerve tissue had in good part disappeared, and was replaced by those thick filaments of connective tissue which are so well known in atrophied spinal cords. In other places, on the contrary, we could, with the apparently still normal transversely cut nerve fibres, discover groups of others, in which a granular degeneration of the contents had begun, or was already far advanced. In the former this granular metamorphosis appeared distinctly to commence around the axis cylinder.

This led me to form a definite opinion as to the origin of the so-called granular cells, which in softening of the nerve tissue are so extremely numerous. But on the special nature of this point I prefer to treat separately in a short essay.

Further, I found the vessels of the pia mater around the spinal cord, and in the anterior fissure, loaded in many places by natural injection. In the atrophied spinal cord, too, even in hardened preparations, many capillaries congested with blood were perceptible. Moreover, in almost every preparation, among the granular mass and the granular cells, lumps of brown or yellowish pigment of irregular form were met with, and only here and there rhombic crystals were found. The ganglionic cells of the grey substance were in many sections still tolerably normal. In others they were changed into large granular heaps, though still distinctly recognizable by position and form. Without, on the present occasion, further describing the changes of the spinal cord in detail, I shall observe only that their results do not apparently differ from what we are said to meet with in every case of "chronic myelitis," "grey degeneration," and "tabes dorsalis." It is only to the irregularly scattered masses of pigment, and the small crystals of hematoidine that I think a more particular signification is to be attached.

They acquire this especially when we bear in mind the clinical phenomena, the sudden occurrence of the paralysis, the rapid course of the disease, &c. But that there can in this case be no question of acute myelitis is clear, whether we study its clinical history, or the results of the pathological investigation. There is, undoubtedly, "apoplexia medullæ spinalis," but apparently without "hemorrhage." I had often, after sudden or rapidly occurring paralysis of the lower extremities, where effusion of blood was suspected, on *post mortem* examination found only myelomalacia, without distinct remains of hemorrhage. Yet at first the latter were sometimes not entirely absent, but were, for example, demonstrable in some places in the brownish-yellow colour of the softened mass, and subsequently there were cases of much more tedious course, where the softening was very far advanced and a great deal of the spinal cord was changed into a pappy mass. There was, consequently, no difficulty in assuming, as in softening of the brain after cerebral hemorrhage, that the primarily effused blood had given rise to the destruction, but was no longer recognizable as such.

This investigation, however, led me to doubt whether the effusion of blood in greater quantity (as so-called foci apoplectici) in the spinal cord is correctly assumed. Although the descriptions of hemorrhage of the spinal cord, and of the further changes of and through the effused blood, start from this supposition, the great rarity of the occurrence of foci apoplectici is at the same time everywhere stated. I have not yet been able to consult all sources of information, but this may even now be

mentioned as the result of literary research—that I have met with scarcely any well established cases of primary hemorrhage of the medulla spinalis with microscopically visible foci. In one case, which is communicated by Ollivier,^a and is borrowed from Cruveilhier, a much greater focus seems to have been found; but if we consult the history of the case it appears to be very doubtful whether another affection of the spinal cord did not exist, and whether the hemorrhage was not secondary. The observation of Hutin, likewise quoted by Ollivier in the same place, seems to be still more in favour of the occurrence of effusion of blood, at least of the size of a small pea. But the short communication of Ollivier is not sufficient to enable me to form an opinion from it, and I have not had an opportunity of consulting the original work of Hutin.

In any case it appears from the observation communicated by me, as well as from other analogous observations made by Dr. Imans and myself, and from the great majority of cases on record, that often after apoplexy of the spinal marrow, no visible hemorrhagic foci, nor perceptible remains thereof are found, but only more or less extensive atrophy, sometimes with little softening of the spinal cord.

In explanation of this, I think we may assume, especially in view of the recorded investigation in the foregoing case, that *in apoplexy of the medulla spinalis hemorrhage, in the ordinary sense of the word, seldom (never?) takes place, but only intense hyperemia, with capillary hemorrhage* (or merely transudation of blood cells?) By the persistence of this hyperemia, and the influence of the microscopical blood points scattered through the tissue of the spinal marrow, the chronic nutritive change, the atrophy, and the softening in some places, can easily be accounted for. This hypothesis (which regards the process in the spinal cord as closely resembling what takes place in the eye in apoplectic retinitis) is, rather than the assumption of hemorrhagic foci, consistent:

1. With the not unusual recovery of patients after sudden paralysis of the inferior extremities.

2. With the recognized utility of abstractions of blood, and of derivation from the back in some cases.

3. With the results of pathological investigation in cases in which death ensued rather suddenly, as in that here recorded. In this last I think also that importance is to be attached to the microscopic pigment granules and crystals scattered through the spinal cord, and to the highly congested blood-vessels still visible in the microscopical preparations.

4. With the anatomical peculiarities of the spinal cord (the firm enveloping by the pia mater, the small blood-vessels), and with the frequent occurrence of apoplexy of the medulla spinalis in persons at an

^a *Traité des maladies de la moëlle épinière*, par C. P. Ollivier, 3^{me} edit. Tome second, pp. 170 *et seq.*

earlier period of life than those who are usually stricken with cerebral apoplexy (which is connected also with the difference in the blood-vessels of the brain and of the spinal cord, and with the influence of the atheromatous process in the former).

With this hypothesis accords also the occasional occurrence of secondary effusions of blood, sometimes of great extent (which one can scarcely imagine to take place primarily in a healthy spinal cord). Especially when in the series of chronic nutritive changes, which proceed from hyperemia and capillary hemorrhage, softening is predominant, we have a condition favourable to actual hemorrhage. If the patient dies soon after such a process we shall find fresh blood. Some of Ollivier's cases were probably of this nature. If the destruction of the spinal cord proceeds still further, we have the brown or yellowish pap, precisely similar to the yellow softening of the brain.

This hypothesis respecting apoplexy of the spinal cord is thus far not entirely new; that some writers, both clinical and pathological, incidentally point out that hemorrhage in the spinal marrow is rare, and probably in many cases occurs only as small foci in intense congestion.^a

Further considerations as to the course of disease and the changes in the spinal cord proceed, however, always from the supposition of a primary hemorrhage, just as in cerebral apoplexy. It appears to me that the interpretation of the process which I have endeavoured to put forward throws more light upon the pathogeny of apoplexy of the medulla spinalis. Therapeutically, also, I look upon the matter as important, because, in all cases of sudden or rapidly occurring paralysis of the lower limbs, with the assumption of hyperemia with what can scarcely be called hemorrhage, the employment of copious local abstractions of blood and of derivative means is justified; while, even less than in cerebral hemorrhage, is any advantage to be hoped for from this treatment against the proper morbid process, under the opposite, and, as I believe, very general view of the case.

Further investigations may certainly throw still more light upon this question. The pressure, which a Journal sometimes exercises, led me, on the present occasion, to publish these remarks, which, therefore, as well as the following short paper, I wish to be considered as only a preliminary communication.—*Utrecht, Dec. 24, 1868.*

On the Origin of Granular Cells in Softening of Nerve Tissue. By W. KOSTER.—The examination of the spinal cord, of which mention is made in the foregoing paper, led me to a definite conclusion as to the formation of the well-known large granular cells, which constitute, in great part, the softened nerve mass. In some transverse sections, in addition to normal fasciculi of nerve fibres, I met with others where the

^a See, among others, Hasse, *Krankheiten des Nervenapparates*, p. 609.

granular metamorphosis had apparently just begun, and where the first accumulation appeared around the axis cylinder. At the same time nerve fibres in a state of more advanced degeneration were visible, quite dark and granular; while free granular cells were not wanting, and here and there, as it were, appeared projecting from the transverse sections of the nerve fibres. In such spots the neuralgia had undergone no appreciable change. The nerve fibres lay still close to one another, as in a normal transverse section. Only in the grey substance were further changes met with, as has already been stated in the preceding paper; dilated blood-vessels, pigmentary and granular change of the ganglionic cells.

In longitudinal sections the granular contents of the nerve fibres were visible, sometimes still as a continuous column, but sometimes, also, distinctly divided into groups, though as yet comprised within the limit of the nerve fibres. When the degeneration was farther advanced, where the boundaries of the nerve fibres were scarcely any longer recognizable and the interstitial connective tissue was greatly thickened, the granular groups (granular cells) were still often seen lying regularly in rows, quite in the direction of the nerve fibres.

For this investigation into the origin of the granular cells, the ordinary method of making the spinal marrow transparent by means of turpentine or creosote, is not advisable. Especially in very thin sections the proper boundaries of the granular columns or groups vanish, and the whole section appears uniformly granular. I attained my object best by examining very thin sections with weak soda ley and glycerine, or with solution of chloride of calcium, or by allowing somewhat thicker sections to become only partially transparent in creasote. Opaque spots then remain, in which the granular degeneration is still well seen.

The answer to the question whether the "granular cells" are the product of the retrogressive metamorphosis of the nerve elements, or whether, as their old name of "inflammatory globules" (Gluge) would indicate, and in accordance with what is certainly the most commonly-received opinion, they are inflammatory products of the interstitial connective tissue, is of great importance to our pathological knowledge in general; and for the estimation of the changes of the brain and spinal cord in particular. In accordance with Virchow's theory as to irritation of the connective tissue and proliferation, authors are usually inclined to look upon the granular cells as products of inflammation. Virchow himself seems to be of this opinion, as would appear from his essay upon interstitial encephalitis.^b Other investigators, who in studying the changes of the spinal cord, have accurately traced the occurrence of granular cells (Westphal, Meschede, &c.), seem latterly not to have

^b Virchow's Archiv. Bd. xiv., p. 476.

attended to the genesis of these bodies. W. Gull, whose numerous observations upon paraplegia^a are well known, calls the granular cells "exudation cells in a state of fatty degeneration."

I do not wish to assert that the origin of the granular cells positively demonstrated by me, in the spinal cord, from the contents of the nerve fibres (and probably, also, from ganglionic cells), proves that a different course of things can nowhere take place; but I may even now provisionally say, that an accurate study of the morbid processes in the nervous system will probably everywhere exhibit these granular cells as products of degeneration of the nerve elements. I should, in that case, prefer to call them granular heaps or groups. Any further investigation, which should render the study of the inflammatory process, as compared with other morbid processes in the nervous system, necessary, did not on this occasion form part of my plan, any more than a circumstantial description of the further pathologico-histological changes which existed in the spinal cord examined by me.^b—*Utrecht, December 24, 1868.*

I. Lachrymal Conjunctivitis and its influence on the Sight.

II. Disorders of the Sight due to Affections of the Lachrymal Passages.

Two Essays.^c By XAVIER GALEZOWSKI, Doctor of Medicine, Laureat, and Extra-Academical Professor of Ophthalmology in the Practical School of the Faculty of Paris.

Translated by C. E. FITZGERALD, M.B., M.Ch. Dub.

I. THE affections of the lachrymal passages form a very important study, as much from the point of view of their ordinary appearance as from the complications and subsequent complaints they may give rise to.

Among the latter, inflammation of the conjunctiva plays a most important part. The prolonged retention of the tears in the conjunctival *cul-de-sac* may induce an irritation, and even a true inflammation of that membrane. It is this inflammation of the conjunctiva that I propose to describe, under the title of lachrymal conjunctivitis.

Neither ancient nor modern authors have bestowed any attention upon this affection; even those, like Scarpa, who have observed the irritation and conjunctival redness, accompanying lachrymal tumours, have endea-

^a Guy's Hospital Reports, third series, Vol. iv.

^b I must here add one remark. After I had written the above, I found in the Dutch translation of Wedl's *Pathologische Histologie* (p. 245), a note by Schrant, in which he, resting upon investigations by Türk, lays it down as possible that the granular heaps in some cases are "the emerged contents of the nerve tubes." But he thinks it equally possible (and, in connexion with the text, apparently more probable) that an exudation and new formation of these granular heaps had taken place.

^c These Essays originally appeared in the *Paris Gazette des Hôpitaux*, and are now published with the author's permission.

voured to show that the viscid fluid secreted by the conjunctiva, mingling with the products of the Meibomian glands, passes into the lachrymal sac, and there forms a lachrymal tumour.

Pilz and Wharton Jones describe inflammation of the conjunctiva in acute and chronic inflammations of the sac. M. Wecker has confounded simple with catarrhal conjunctivitis. In speaking of this latter affection, he mentions having met with very persistent catarrhal inflammations due to strictures of the lachrymal passages. These were evidently cases of simple or lachrymal conjunctivitis, which has nothing in common with catarrhal. Lastly, Mackenzie speaks of a patient who had been treated for a long time by a surgeon, for conjunctivitis, but in whom the superior lachrymal canal alone was affected. Such are the facts found recorded by authors; most frequently they merely notice them in a casual sort of manner, without attaching to them that importance which they deserve.

Since the year 1866, I have been struck with the great frequency of lachrymal conjunctivitis, even in cases where, to all appearances, the lachrymal passages were not affected. The results of my observations have been published in the *Klinika*, a medical journal of Warsaw. Since then, my researches have led me to some very important conclusions. The frequency of the malady is so great that I have no hesitation in assigning to it a distinct compartment in nosology. Thus, I have met with it in 72 out of 363 cases of conjunctivitis.

The excellent thesis, for the degree of doctor of medicine, by M. Etchecoin,^a contains a summary of several of my views on this subject, which I shall endeavour to make clear in this paper. The prolonged retention of the tears in the conjunctival sac cannot provoke any irritation so long as they remain completely neutral, and their quantity be not very great. But this is not the case when their composition changes. The chemical composition of the tears is well known. According to Arlt, 100 parts contain 1·257 of chloride of sodium, 0·504 of albumen, and 0·016 of other saline constituents. Other authors have found their composition different. According to M. Robin, they contain in addition, phosphate of lime and of soda. According to Pilz, there are 98·70 parts of water, 0·94 to 1·30 of solids, 0·14 to 0·32 of epithelium, 0·08 to 0·10 of albumen, 0·72 to 0·88 of chlorate and phosphate of soda, as well as other salts.

This diversity of chemical analysis proves sufficiently that the composition of the tears does not remain constant. My own investigations, made on patients suffering from affections in the neighbourhood of the lachrymal passages, have also convinced me that the composition of this liquid changes according to individuals and different morbid predispositions. It is on this account that I examine the tears of my patients by intro-

^a Etchecoin thèse de doctorat, 1868, sur la conjontivite lacrymale.

ducing litmus or turmeric papers between the eyelids. This immediately permits my recognizing their acidity or alkalinity.

In healthy eyes the tears are quite neutral, or almost so, and, consequently, no reaction takes place on the test paper; this, however, is not the case in affections of the lachrymal passages; they then are, most frequently, very strongly alkaline.

It may be well conceived, then, that the retention of a strongly alkaline liquid in the conjunctival *cul-de-sac* must produce a certain irritation of that membrane. This takes place the more easily, as the fatty or oily secretion of the Meibomian glands, which spreads itself over the surface of the eye so as to preserve it against the irritating action of the tears, is transformed, by the alkaline salts which they contain, into a species of soap; so that the freshly secreted tears, finding the cornea and conjunctiva quite dry and unlubricated, irritate these structures very sensibly.

These are, then, all the signs of irritation and increased sensibility, which presently lead to inflammation of the conjunctiva or the borders of the eyelids, and, after the lapse of some time, the affection of the excretory ducts, the lachrymal canals and sac. For the present we shall merely devote our attention to the affections of the conjunctiva, and the disorders of the sight which result from them.

(A) *Lachrymal Conjunctivitis*.—This may present itself under two totally different forms, chronic and acute. The former is the more frequent; it is marked by its excessively chronic character and the persistence of the same symptoms for months and years. The following are the signs of this malady:—

(a) Every morning the eyes are bleared, the eyelashes and angles of the eyelids are covered with crusts and mucosities.

(b) The patient, on waking, finds his eyes so sensible to the light of day that he can scarcely bear to open them. There is true photophobia which continues for five, ten, or fifteen minutes. As soon as the eyes have been washed with fresh water this sensibility disappears.

(c) The palpebral and ocular portions of the conjunctiva are injected, especially at the two angles, and frequently there are vascular streaks which reach almost to the border of the cornea, and which often raise the suspicion that phlyctenulæ are present.

(d) Exteriorly the eyelids are most frequently healthy, and sometimes there is merely a redness of the skin at the external angle.

(e) In the morning, as a general rule, the sensibility decreases gradually so that in the space of an hour or two, the patient is able to engage in his occupations. But during the day, as soon as he goes abroad, he finds it impossible to bear the sunlight; the photophobia is so great that he is constantly obliged to wear coloured glasses.

(f) At the same time there is lachrymation; frequently, however, this does not exist, except in strong light or wind; in the shade or in a dimly

lighted room it ceases. Patients interrogated as to its existence often deny it, which renders the diagnosis the more difficult.

(g) Towards the evening, and by the strong light of a lamp, the same symptoms recur; photophobia, sensibility of the eyes, a sensation of dust under the eyelids, conjunctival redness, completely simulating catarrhal conjunctivitis.

(h) All work in the evening becomes impossible. The sensibility is so great that the patient can regard nothing fixedly; letters appear double, and a mist seems to be before everything he looks at.

(i) The phenomenon of variously coloured circles, like circles of rainbows round a flame, may be present, but is not constant. It is due to an accumulation of tears at the borders of the eyelids, which, acting like a prism, decomposes the light. A case, most interesting from this point of view, and which I think it advantageous to give here, recently came under my observation.

CASE.—M. X—, aged forty-seven, came to consult me in the month of January, 1868, about his left eye, which, for some weeks past, had become remarkably weak, at the commencement of which time he had been wounded by a metallic rod, which had torn both eyelids; the cicatrices were still to be seen.

The eye was red, the conjunctiva greatly injected, the patient could not see objects far or near, the watering from it annoyed him constantly, and he complained of frequently seeing rainbows round the flame of a candle. Perceiving an accumulation of tears at the borders of the eyelids, I desired him to hold them widely open and apart, immediately this phenomenon disappeared, re-appearing again as soon as he relaxed the eyelids. Evidently there was some affection of the lachrymal passages; an injection made through the inferior lachrymal puncta did not entirely pass. I made an incision through them, and passed the sound; this sufficed to cure the patient completely.

This case presents the more practical interest as the disorder of the sight complained of by the patient, coming on after the wound, accompanied by pain in the eye, photophobia, and the appearance of coloured circles, might have led one to suspect the commencement of glaucoma.

(k) Lachrymal conjunctivitis is a chronic affection; it lasts for years; patients habituate themselves by degrees to the inconveniences they experience, and it is only at times they suffer from the severer symptoms which prevent them from working.

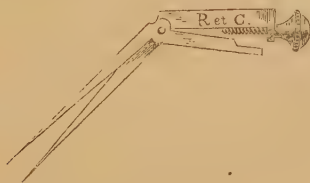
(l) When the conjunctivitis declares itself in elderly people, or when it lasts for many years, it may produce eversion of the eyelids and give rise to that form of ectropion called senile, but which, in my opinion, is simple lachrymal ectropion.

(m) Chronic lachrymal conjunctivitis may suddenly take on a sub-acute

form, and give place to all the symptoms which characterize catarrhal conjunctivitis. There is then swelling of the eyelids, considerable supuration, pain, and the sensation of dust in the eye, with all the other signs of this latter affection. It is, perhaps, on account of this resemblance that modern authors describe catarrhal and simple conjunctivitis as one and the same malady. Since, however, the cause of the malady we have to do with is mechanical, that is to say, is produced by the tears remaining between the eyelids and irritating them, the treatment must be different. The cause of lachrymal conjunctivitis has its origin in some part or other of the excretory ducts for the tears; sometimes it is a deviation, sometimes a stricture or obstruction of the puncta, lachrymal or nasal canals. This can be easily determined by making an injection of lukewarm water into the puncta. The moment the existence of a stricture or obstruction is established, the operation for restoring again a free passage for the tears should at once be proceeded with.

Treatment.—In this affection, as in many other diseases of the eye, the line of treatment pursued by the surgeon should vary according to the symptoms complained of by the patient. Once a stricture of the lachrymal passages is well established, it imperatively demands treatment, which consists, first of all, in making injections of lukewarm water into the lachrymal passages, by means of Anel's small syringe, and then, as soon as circumstances permit, having recourse to dilatation of the lachrymal puncta, by means of my dilator (*see plate below*), or even an incision into the lachrymal puncta, and the introduction of graduated sounds into the nasal canals. By this radical treatment the lachrymation and conjunctivitis are successfully got rid of.

But apart from surgical treatment, which is not always submitted to by patients, it is well to be acquainted with some means of allaying the principal symptoms which annoy them. It is in these cases that the application of cold compresses to the eyes gives considerable relief, while poultices and compresses of hot water, which are of such benefit in catarrhal conjunctivitis, generally aggravate this affection.



This Plate (drawn to the same scale as the instrument) represents Dr. Galezowski's dilator, as manufactured by MM. Robert and Collin, Rue de l'Ecole de Médecine, Paris.

Fresh cucumber ointment^a is very useful for soothing the irritated eyelids and preventing their adherence during the night. Among the collyria which may be advantageously employed I consider the sulphate of zinc the best for subduing this simple or lachrymal conjunctivitis. I generally prescribe it in the following proportion:—

Zinci sulphatis, grs. iv.

Aquæ destill., ℥ii.

Let the eyes be bathed with this morning and evening. In sub-acute lachrymal conjunctivitis some cauterization of the inferior eyelids with crystal of sulphate of zinc, together with dilatation of the obstructed lachrymal ducts, suffice to arrest this inflammation.

Disorders of the Sight due to Affections of the Lachrymal Passages.

II. In the preceding article we explained how the irritation of the conjunctiva, caused by the prolonged retention of the tears in the conjunctival *cul-de-sac*, induces an inflammation of that membrane. It now remains for us to show, that under the influence of the same cause certain affections of the sight declare themselves which prove very annoying to those who suffer from them; and further, that up to the present ophthalmologists have mistaken them for congestive affections of the internal membranes of the eye.

The frequency of the visual complaint is so great that I deem it necessary to give as detailed and complete an account of it as possible.

In order to understand perfectly the effect of the tears upon the eye and vision it is necessary to recollect the physiological part played by this fluid.

The tears lubricate the surface of the eye, and wash away from it all foreign particles. The eye, however, is not alone lubricated by the tears; the secretion of the entire conjunctiva conduces considerably to the moistening of the organ. There are some authors even go so far as to say that the lachrymal gland and tears are not at all necessary. On this point I entirely agree in the opinion expressed by M. Richet,^b when he says:—"He is reluctant to believe that the entire lachrymal apparatus can be a useless appendage. . . . If, after the removal of a diseased lachrymal gland, the surface of the conjunctiva remains lubricated, it is because the gland properly so called has not been removed. . . ."

The lachrymal secretion, like all the other secretions of our organism, is, in fact, indispensable. The amount, however, of the liquid secreted is not always constant. An irritated eye secretes more than a healthy one. An obstruction or narrowing of the excretory ducts for the tears induces a prolonged contact of the latter with the surface of the eye, which

^a Paris Codex.

^b Richet. *Anatomie Chirurgicale.*

eventually leads to irritation of the conjunctiva, conjunctivitis, ectropion, blepharitis, &c.

Thus, as material changes may take place in the eyelids and conjunctiva by the simple alteration of the lachrymal passages, so may the visual functions, to a certain extent, be implicated. All things are so intimately related in our organism, that when an organ suffers its physiological action, as well as the functions of adjoining membranes, cannot be adequately fulfilled.

The membranes which cover the anterior surface of the globe of the eye are endued with a high degree of sensibility; but neither the atmosphere in which we live, nor day nor lamp light, can, in the ordinary state, excite this sensibility. It is possible, however, that these same external agents may provoke a very great irritation of the eye; it becomes very soon fatigued, fills with tears, and the whole train of morbid symptoms succeed which render the patient unfit for any kind of work. Thus, in all the forms of conjunctivitis or keratitis the nerves are so excited and sensitive that the action of the air or wind, or even the reflex action of the light, produce a spasmodic contraction of the eyelids, watering, photophobia, &c.; followed by fatigue of the eyes and dimness of sight, which debar the patient from all possibility of working. Should these symptoms continue or increase there will be true amblyopia, an explanation of which will be sought for in the interior of the eye.

The following are the principal symptoms complained of by persons suffering from this affection:—

1. Photophobia is the most constant phenomenon, and most distressing to the patient. The eyes cannot bear a moderately bright day. Patients on going abroad or into the sun are so dazzled that they are obliged to shade their eyes behind a dark veil, or coloured spectacles. Among those who wear coloured glasses, in the case of at least the half, the photophobia is of a lachrymal character. Children who cannot work in the evening by gaslight; persons who, by their occupation, have to read and write much in the evening, and are soon fatigued, and a great number of those who cannot remain long at a theatre on account of the fatigue of their eyes, are most frequently suffering from lachrymal photophobia. These patients are in most cases treated for congestive affections of the retina or choroid, whilst the real cause is generally overlooked. The following is one of numerous examples of this affection. The patient himself has furnished the details:—

CASE.—M. D., aged twenty-two, a student of medicine, has resided in Paris since November, 1865. He is myopic as regards distant vision. His sight, however, is very good, never having been affected, and it was not till 1864 that he began to suffer, as may be seen from the account which he has had the kindness to furnish me with.

"Towards the end of December, 1865, I began to experience a feeling of fatigue in my eyes, especially in the evening by lamplight. As soon as I commenced working, the conjunctiva became bloodshot, the eyes filled with tears, and I felt as if there were sand under the eyelids. By degrees the photophobia became excessive. I was no longer able to open my eyes or fix them on any object, and at the end of two or three hours work objects appeared confused, and seen as it were through a fog. I then bathed my eyes for some time with fresh water, and that soothed them, so that I was able to resume my work. At first I attributed all these phenomena to the action of gaslight, to which I had not been accustomed; but seeing this sensibility still persisted, I decided on getting some advice. In January, 1866, I consulted an oculist in Paris, who found the retina of both eyes congested, and prescribed the application of cupping glasses to the temples, rest in the evening, and the wearing of blue spectacles. I was very averse to the application of cupping glasses; and as the complaint grew worse I went, by the advice of my colleagues, to another oculist. This latter made the following diagnosis:—Myopia, with posterior staphyloma and congestion of the retina. He prescribed an astringent collyrium, the wearing of blue spectacles, a good tonic regimen, and little work. Under this treatment I experienced a considerable change for the better, but could not read much in the evening, which annoyed me. During the day I was well, but the moment I began to read the photophobia and watering appeared. I was recommended to continue the same treatment."

Not being able to work, and seeing no prospect of recovery, M. D. came to consult me in December, 1866. After taking cognizance of all the symptoms he complained of, I examined the state of the lachrymal passages, and it required no difficulty to see that the puncta were narrowed, and deviated slightly outwards. On this account I decided on making an incision into the lachrymal puncta. I excised the edges of the wound so as to prevent their adhesion, and introduced the sound from time to time. This treatment has completely succeeded. "At present," says M. D., in his note, "all the unpleasant symptoms have vanished, and I am happy in being able to study in the evenings as well as my colleagues. It sometimes happens, when the weather is damp or cold, that I suffer from slight conjunctivitis, photophobia, and lachrymation; but one or two injections through the lachrymal puncta suffice to cure these."

2. At the same time that there is photophobia, there is also sensibility of the globe of the eye to the touch, and at times its movements become painful. This is due to the constant irritation of the conjunctiva.

3. The eye being sensitive, and its movements painful, spasmodic contractions of the eyelids frequently occur, causing a compression of the globe of the eye, which is communicated to the subjacent parts of the

retina. The patient sees before him flashes and lights of all sorts, and true phosphenes. It is probably owing to the presence of this latter phenomenon that oculists have so frequently mistaken this affection for congestion of the retina.

I think it proper to insert here a case the more striking on account of its presenting the above-mentioned symptoms, due to affections of the lachrymal passages.

CASE.—M. P., aged forty, usually residing in Turkey, came to consult me towards the end of July, 1868, about his left eye, from which he suffered a great deal. The following is the history of his malady:—

In 1857 he received a wound of the capsule of the right eye, which continued bloodshot for three months, but eventually recovered. In 1861 the eye inflamed, became red and painful; at times the neuralgia pains were exceedingly violent. Irido-choroiditis followed from the wound to the capsule. Enucleation of the eye was performed in 1867 by Dr. Mannhardt. The operation was very successful, but at the same time the patient began to suffer from the left eye. It became very tender when exposed to sunlight, gas, or lamplight. The photophobia was so great at times that he was unable to open the eye. Soon the sight became affected, and all close work, as reading or writing, was rendered impossible. A sort of fog obscured the letters, and he could see nothing. He had recourse to convex spectacles of various strengths, up to even No. 8, without, however, being able to read. What distressed him principally were a multitude of muscæ and a species of dust which appeared before everything he looked at. To these symptoms were soon added neuralgic pains in several branches of the fifth pair; at times even one-half of the head was tender to the touch; the eye itself had become painful, and every movement, above or inwards, was accompanied with considerable pain. In the evening and nighttime he saw luminous circles, and the appearance of fire in the eye. The treatment which the patient had followed for six months, under the direction of several oculists, not having benefited him, he came to consult me. Finding nothing abnormal in the interior of the eye, I examined the lachrymal passages, and found a complete obstruction of the nasal canal on the right side, and considerable narrowing of the left.

The eye had a watery aspect, though the patient did not complain of this. The lower eyelid deviated slightly outwards. The conjunctivæ were very red, but not inflamed.

Incision of the lachrymal puncta, and the introduction of graduated sounds, effected a complete cure. The patient resumed his work, and was able to return to his Chancery business in Turkey.

4. The constant accumulation of tears between the eyelids prevents the patient seeing objects distinctly. The collection more or less

considerable of this liquid interposed between the cornea and edges of the eyelids renders the sight, as regards all minute objects, very indistinct. It is not at all unusual for patients to complain of mists passing before their eyes. This is the mucous which is removed by the tears from the surface of the cornea. The case just mentioned affords an example of this.

5. Patients frequently complain of seeing *muscæ volitantes*; one or several *muscæ* appear before the eyes. Sometimes there is a regular shower of dust and white specks, especially when the patients look at the sunlight. This phenomenon is not constant, but is specially present when the patients go from a shaded into a brilliantly-lighted place. On account of the photophobia the eyelids are brought very closely together. The eye blinks considerably, the pupil is contracted, and then an effect is produced somewhat similar to what occurs on looking through a pin-hole in a card. Innumerable minute specks float about the field of vision. The same thing takes place in an eye which is much irritated, when the person suffering from the photophobia looks through the scarcely opened eyelids.

In the evening, by gaslight, or in an apartment brilliantly lighted, the theatre, for instance, all the symptoms are intensified, the eye becomes incapable of looking stedfastly at or seeing any object. It is exquisite torture to the patient. If he attempts to read or write, immediately the sight becomes dim, and he can see no longer.

6. I have noticed, moreover, in some patients, the phenomenon of monocular and binocular diplopia, which also depended on the lachrymation. This diplopia is specially observed when the patient looks at very minute objects. Thus a needle will appear double; printed and written characters seem to have a double contour; and there are cases even in which each line of the impression appears reproduced, sometimes above, sometimes below the printed line, generally it is above. A considerable quantity of tears being collected at the border of the lower eyelid, acts as another refracting medium from that at the centre of the cornea, and so a double image is produced upon the retina.

Such are the visual disorders which in some persons may be occasioned by affections of the lachrymal passages, however slight. The symptoms so nearly resemble those of amblyopia, due to affections of the internal membranes of the eye, that it is not surprising to find that up to the present they have been mistaken for them. The error is the more likely to occur from the fact that lachrymation, though present in most cases, is occasionally absent. Nevertheless, by means of the exploratory injection, the cause of the malady may be quickly ascertained. These injections, frequently repeated, give relief, and sometimes even effect a cure.

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